JVC

SERVICE MANUAL

CD CHANGER SYSTEM

KD-MK66 series

(Tracking Level Adjustment Manual)

KD-MK66
KD-MK66RF
KD-MK68RF
KD-MK70
KD-MK71RF

Late products of the KD-MK66 series are additionally equipped with the tracking level adjustment function. When the pickup is replaced, make sure to adjust the tracking level after replacement.

- **Modification in detail:** As compared with early KD-MK66 series products for which an auxiliary board is used for adjusting tracking level, the late products incorporate the tracking level adjustment circuit in the MAIN board. However, the method of tracking level adjustment is common to the both types.

NOTE:

Compatibility of pickup with MAIN board

Since the pickup has congeniality to the MAIN board by type, it is advised to replace the pickup with the same type as the original.

Pickup No. OPTIMA-60C .....Normal type
OPTIMA-60D .....Flat type
OPTIMA-60D1....Flat type (Needs adjustment each time the set undergoes service.)

For the set that is originally equipped with the OPTIMA-60D1 pickup, the OPTIMA-60D pickup is substitutable as a service part for the OPTIMA-60D1. In this case, make sure to perform the tracking level adjustment after replacement.

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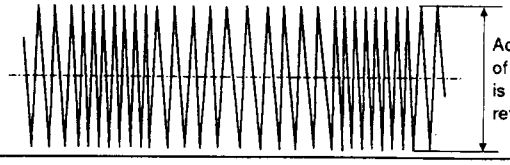
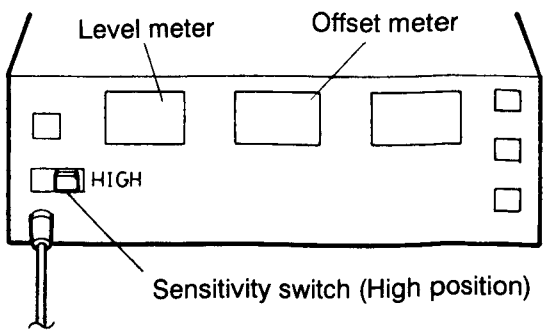
Adjustment

The tracking level adjustment is explained below as a supplement to the service manual.
The following contains the method of adjustment with a tracking offset meter besides the conventional simple adjustment method.

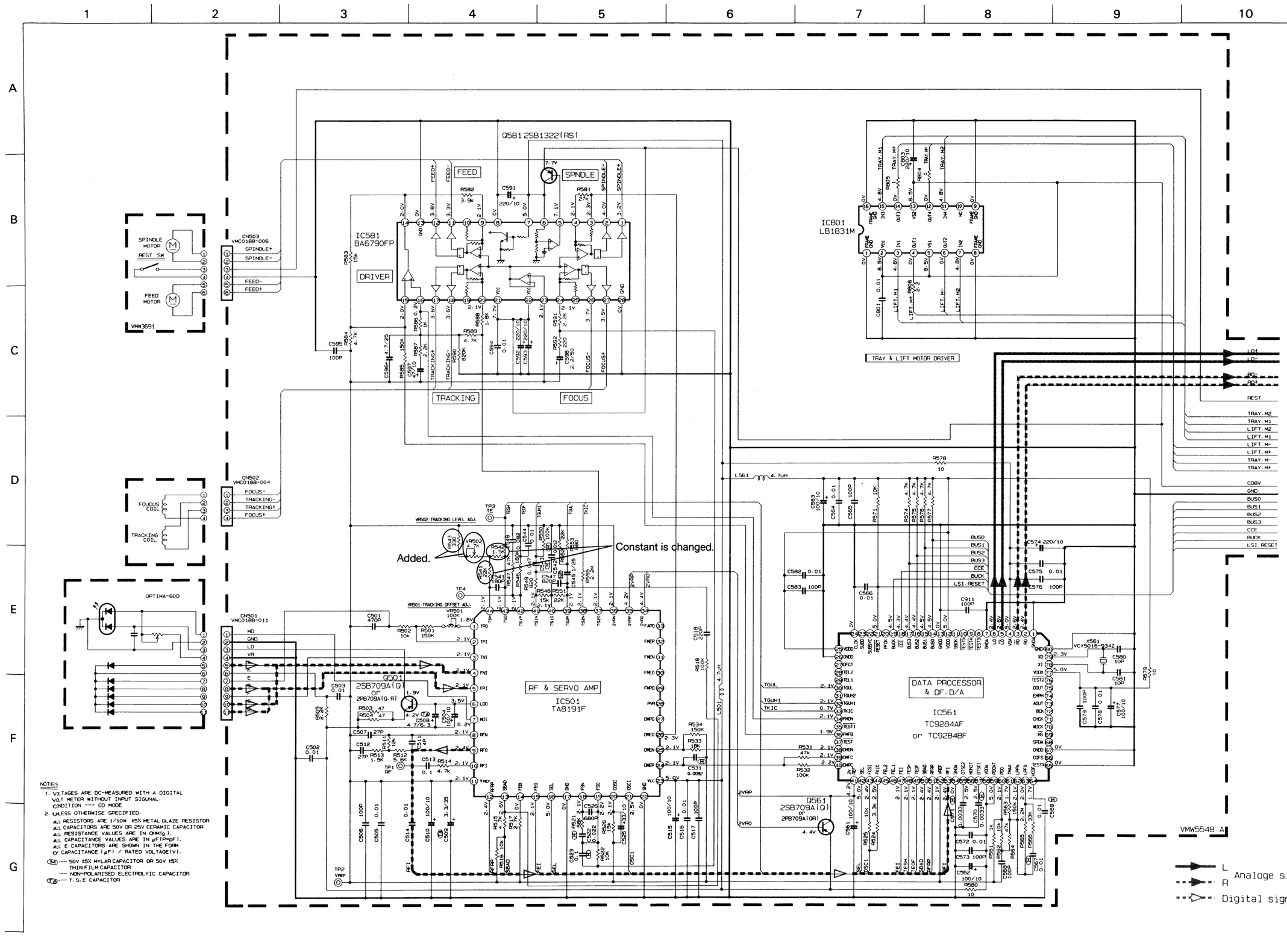
Items	Conditions	Adjustment and Confirmation procedure	Standard Value	Adjusting
3. Tracking offset adjustment	Measuring instrument Tracking offset meter(high range) Test point TP2 : GND side TP3 : Positive side	1. Connect pin 79 (TP:TE ADJ) of IC601 (microprocessor) to the GND. 2. Connect the tracking offset meter between TP2 and TP3. 3. Play test disc (track 8). 4. Short circuit between TP4 and TP2 during CD play. 5. Adjust VR501until the offset meter 0.	Offset meter 0	VR501
	Simplified measument Test point TP2 : GND side TP3 : Positive side Measuring instrument Oscilloscope	1. Same as steps 1 to 4 above (but use an oscilloscope for measurement). 2. Adjust VR501 until the center of the tracking error waveform displayed on the oscilloscope matches the servo reference voltage (V REF). (The oscilloscope input is set to the DC measuring position.) Tracking offset waveform  		
4. Tracking level adjustment	Measuring instrument Tracking offset meter(high range) Test point TP2 : GND side TP3 : Positive side	1. Performe this adjustment after tracking offset adjustment is completed. 2. Adjust VR502 until the level meter reads 0.95 Vp-p.	Adjust 0.95 Vp-p	VR502
	Simplified measument Measuring instrument Oscilloscope	1. Performe this adjustment after tracking offset adjustment is completed. 2. Adjust the peak-to-peak value of the waveform to 0.95 Vp-p.		

※Please note that VR502 is located on the sub board or the main board depending on the model.If it is located on the main board,use the dedicated alignment tool.

Note:
*1: In case the tracking offset meter LTM-9055 is used.



Standard Schematic Diagram (MAIN board with built-in tracking level adjustment circuit)

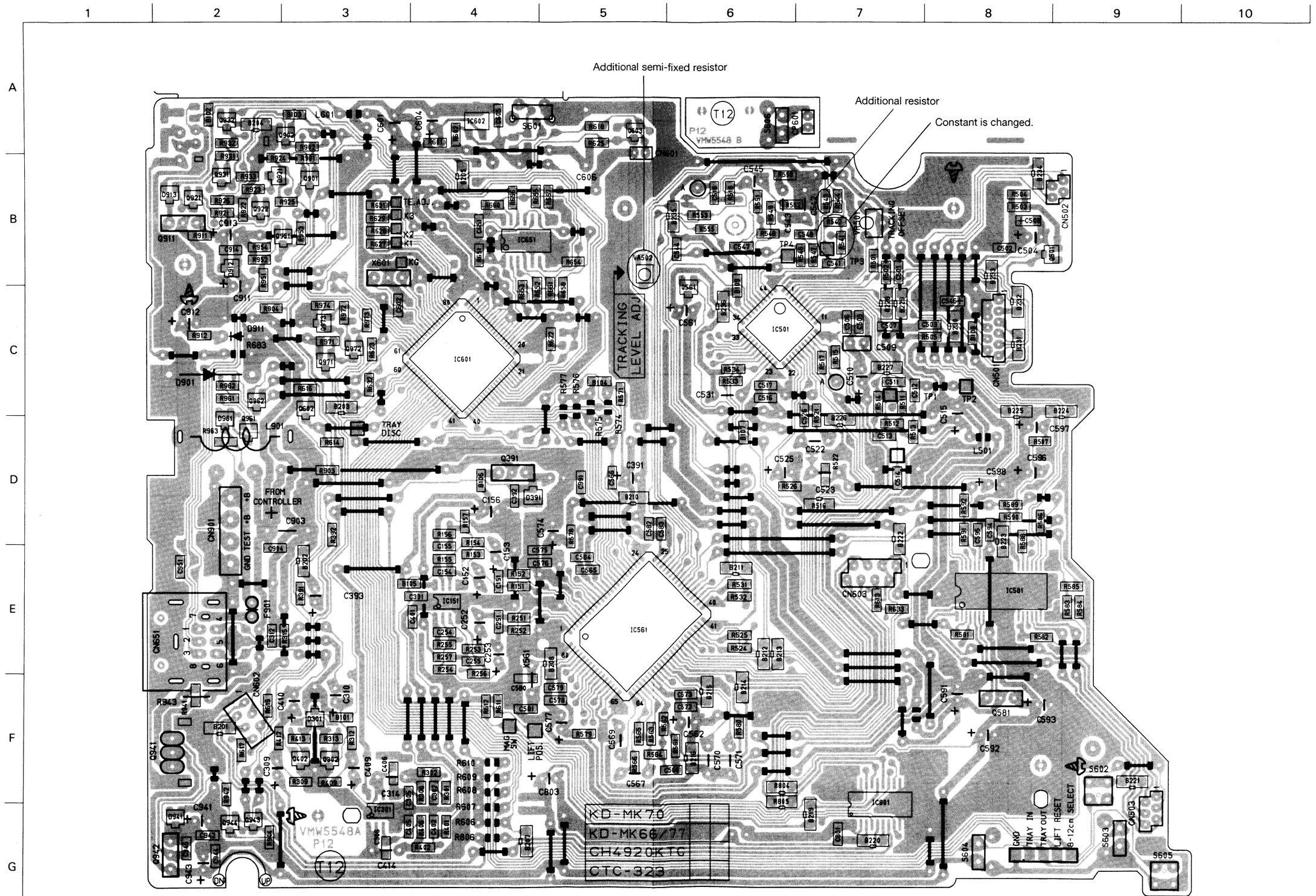


NOTES

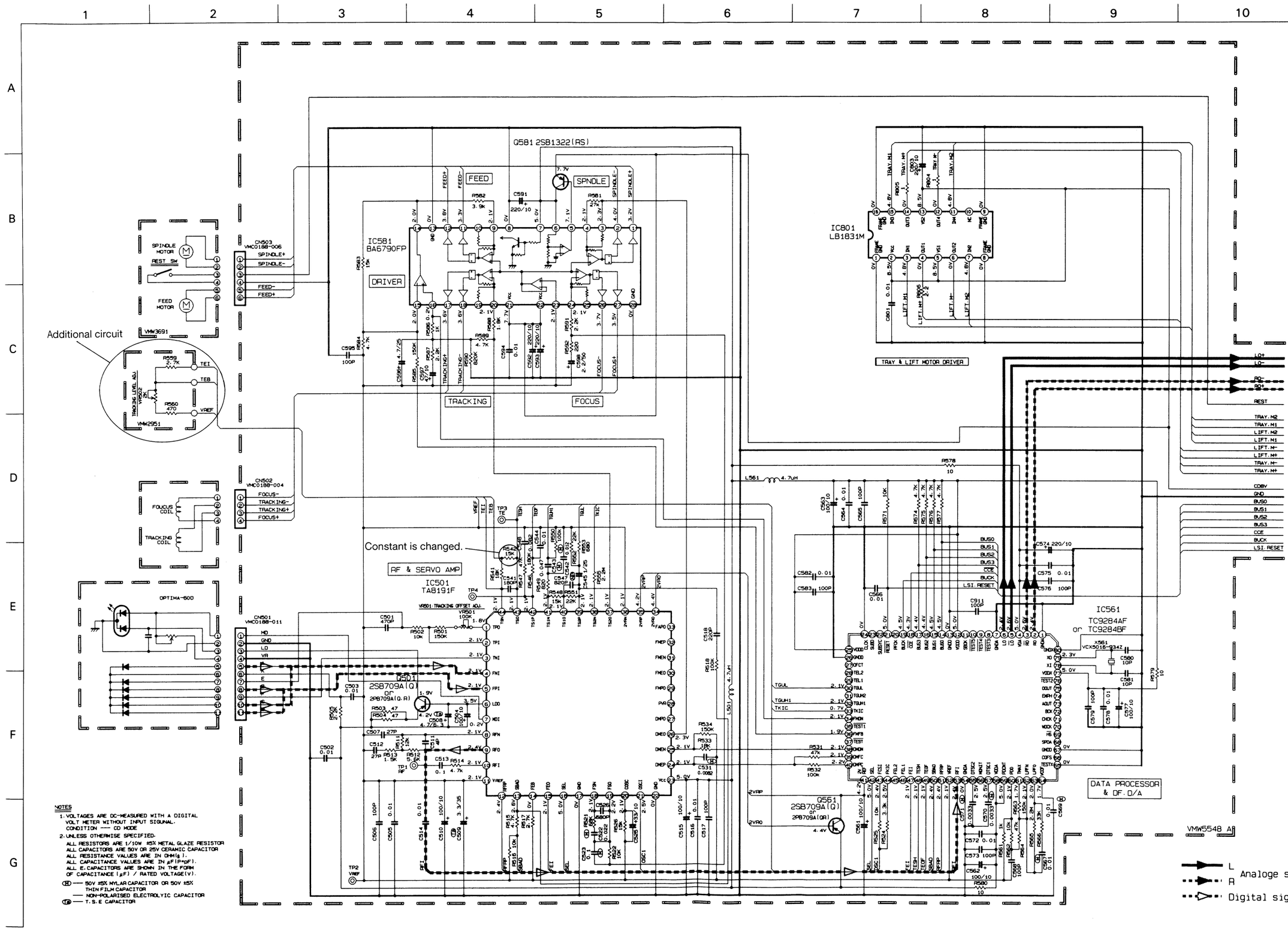
1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER WITHOUT INPUT SIGUNAL.
   CONDITION ---- CD MODE
2. UNLESS OTHERWISE SPECIFIED.
   ALL RESISTORS ARE 1/10W ±5% METAL GLAZE RESISTOR
   ALL CAPACITORS ARE 50V OR 25V CERAMIC CAPACITOR
   ALL RESISTANCE VALUES ARE IN OHM(Ω).
   ALL CAPACITANCE VALUES ARE IN μF(P=pF).
   ALL E.CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE (μF) / RATED VOLTAGE(V).

(M) ---- 50V ±5% MYLAR CAPACITOR OR 50V ±5% THIN FILM CAPACITOR
---- NON-POLARISED ELECTROLYIC CAPACITOR
(TS) ---- T.S.E CAPACITOR

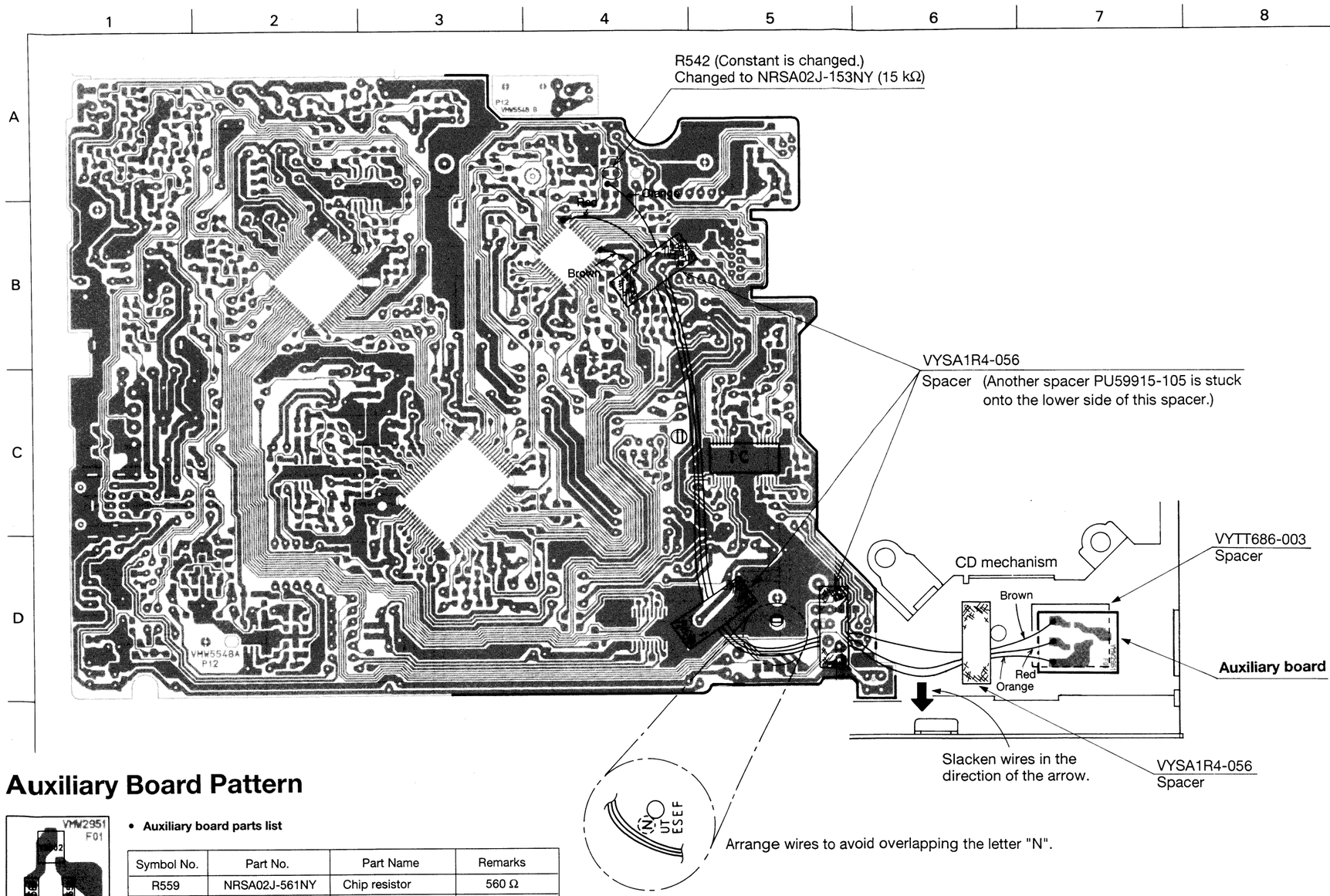
MAIN Board Pattern (MAIN board with built-in tracking level adjustment circuit)



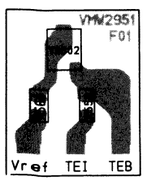
Standard Schematic Diagram (with auxiliary board for tracking level adjustment)



Auxiliary Board Connection to MAIN Board



Auxiliary Board Pattern



- **Auxiliary board parts list**

Symbol No.	Part No.	Part Name	Remarks
R559	NRSA02J-561NY	Chip resistor	560 Ω
R560	NRSA02J-331NY	Chip resistor	330 Ω
VR502	NVP1412-202NZ	Semi-fixed resistor	2 kΩ

In early products of the KD-MK66 series, the auxiliary board employs the following parts whose ratings are different from the present ones as shown in the above table. However, the auxiliary board of subsequent products has employed differently rated parts as shown in the table below for improving adjustability.
(The circuit diagram of the service manual shows ther newly rated parts shown in the table below.)

Symbol No.	Part No.	Part Name	Remarks
R559	NRSA02J-272NY	Chip resistor	2.7 kΩ
R560	NRSA02J-471NY	Chip resistor	470 Ω
VR502	NVP1412-202NZ	Semi-fixed resistor	2 kΩ

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◆ Installing the Lifter and Rear Panel

1. Check the gear position of magazine plate.
2. Press the lifter into the hook, then install the lifter's front side to the uppermost position.
3. Install the lifter sensor flexible onto the motor P.C.B.
4. Set the rear panel slider to the near CD mechanism.
5. Use your finger to fix the rear panel ass'y slider.
6. Engage the lifter at the uppermost position of rear panel ass'y.
7. Install the rear panel and check that the end of slider gear and gear mark are aligned.

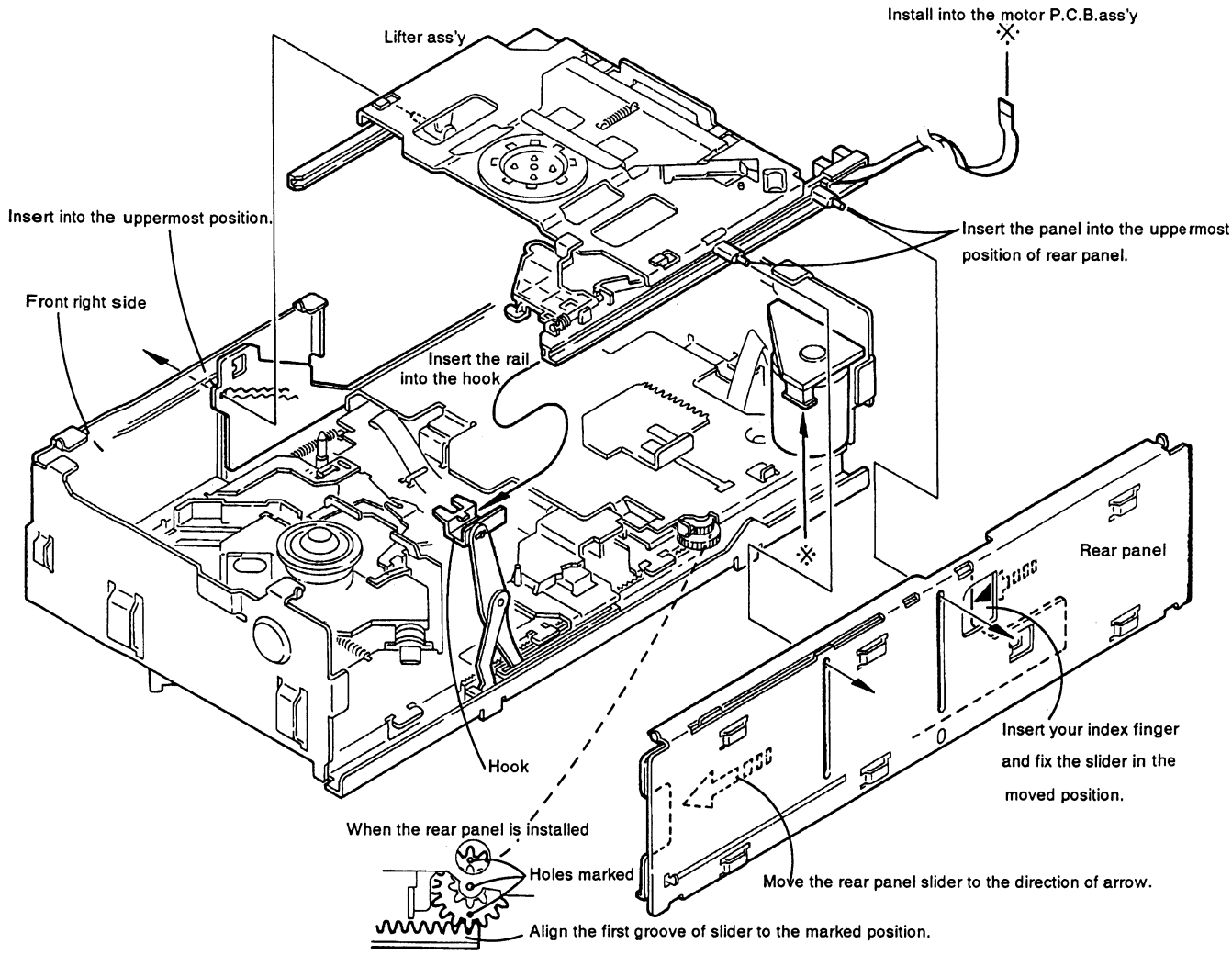

Lifter ass'y
Install into the motor P.C.B.ass'y
Insert into the uppermost position.
Insert the panel into the uppermost position of rear panel.
Front right side
Insert the rail into the hook
Rear panel
Hook
Insert your index finger and fix the slider in the moved position.
When the rear panel is installed
Holes marked
Move the rear panel slider to the direction of arrow.
Align the first groove of slider to the marked position.

Fig. 2 – 17

3 Main adjustment

■ Main adjustment instruments

- ◆ Oscilloscope (Digital oscilloscope (100 MHz))
- ◆ Electronic voltage meter
- ◆ Digital test
- ◆ Tracking offset meter
- ◆ Pulse jitter meter

■ CD measuring disc

- ◆ Standard test disc: JVC CTS-1000
  : CRG-1242

■ Adjustment position view

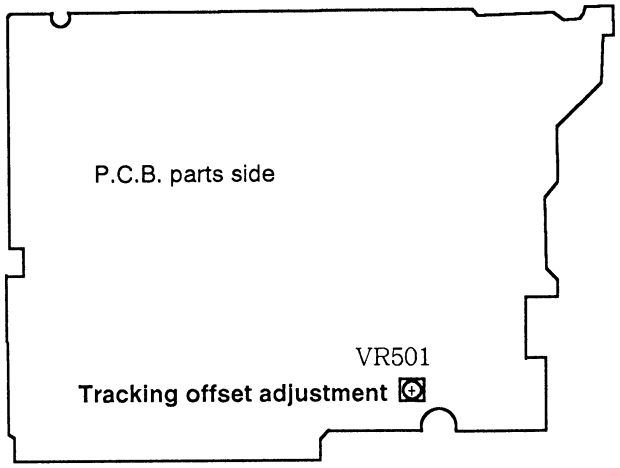


Fig. 3 – 1

■ P.C.B.test point view(pattern side)

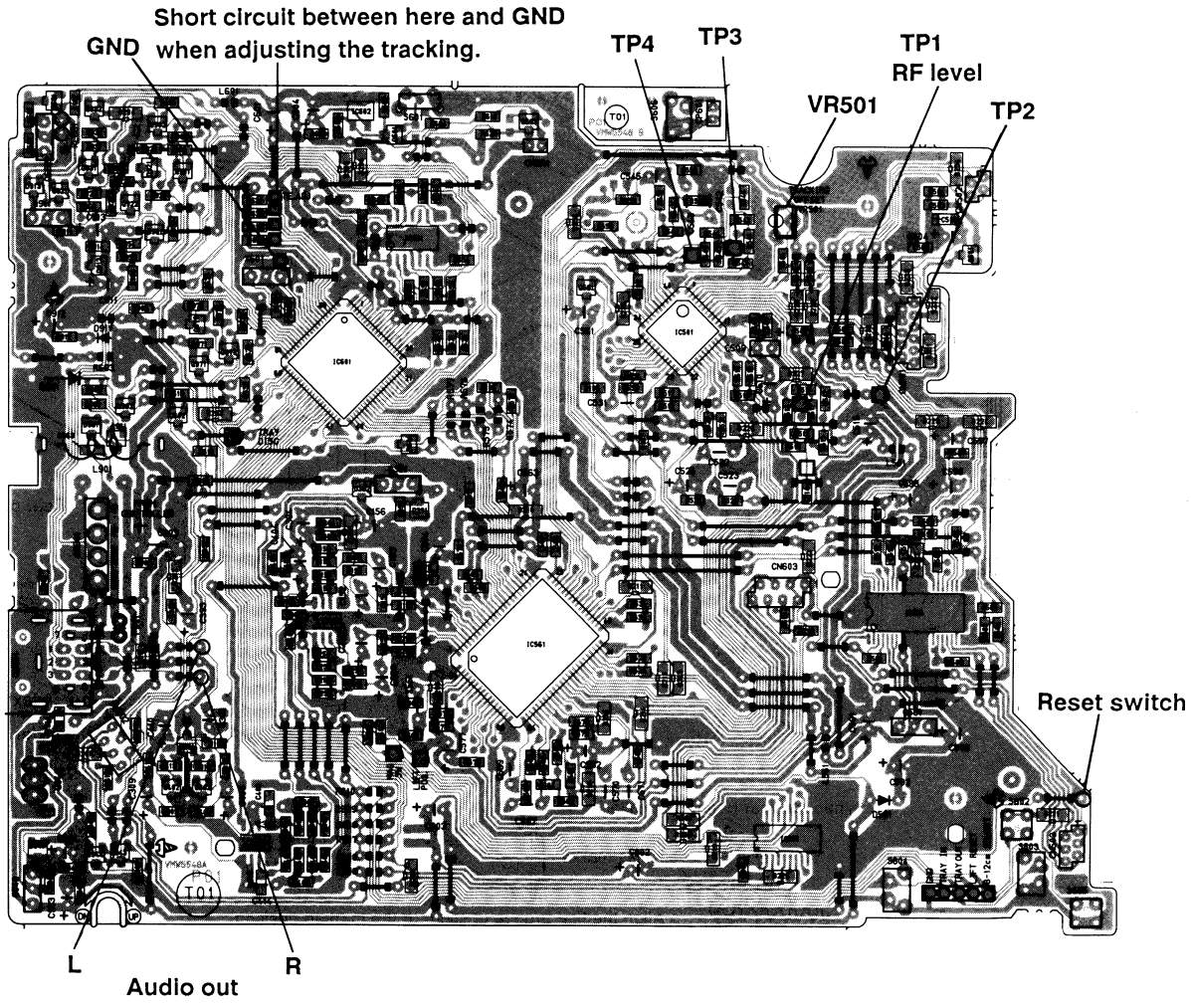
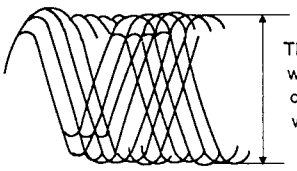
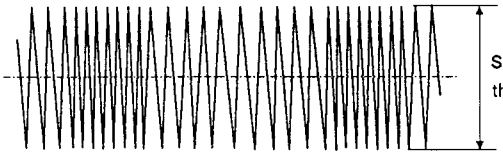


Fig. 3 – 2

Items	Conditions	Adjustment and Confirmation procedure	Standard Value	Adjusting
1. Jitter check	Measuring instrument Oscilloscope Test point TP1: Hot side TP2: GND side	Connect the jitter meter between TP1 and TP2 and when test disc (track 1) is played, confirm that the meter reading is 26n-sec or less.	26n-sec or less	
2. RF level (eye pattern) check	Measuring instrument Oscilloscope	Connect the oscilloscope between TP1 and TP2 and when test disc (track 1) is played, confirm that peak-to-peak value of oscilloscope waveform is within 1.2V +0.3V. Eye-pattern waveform  The maximum value of this waveform should be in the range of specifications and the waveform should be clear	within 1.2V +0.3V.	
3. Tracking offset adjustment	Measuring instrument Oscilloscope	1. Connect the oscilloscope between TP2 and TP3. 2. Play test disc (track 1). 3. Short circuit between TP4 and TP2 during CD play. 4. Connect pin 79 (TP:TE ADJ) of IC601 ((microprocessor) to the GND. 5. Adjust VR501 so that the waveform is vertically symmetrical with respect to zero level. (Use a direct coupling oscilloscope input.) Tracking offset waveform  Set the center of P-P to the zero level	Set the center value of waveform to the zero level.	VR501
4. Play output level checking	Measuring equipment Electronic voltage meter	When test disc (track 1) is played, check that the output level is 1.45V +0.3V (with 20-kohm load).	1.45V ± 0.3V	
5. Outermost circumference		Directly access the outer circumference track 31, check that play is performed normally and that abnormalities including sound skipping do not occur.		
6. Operation checking from outer to inner circumference		Skip from the outer circumference track to track 1 and check the time until play starts. Normally it is less than 10 seconds.	Less than 10 seconds	

4 Troubleshooting chart of CD player section

■ Flowchart Readings of TOC (Table of Contents)

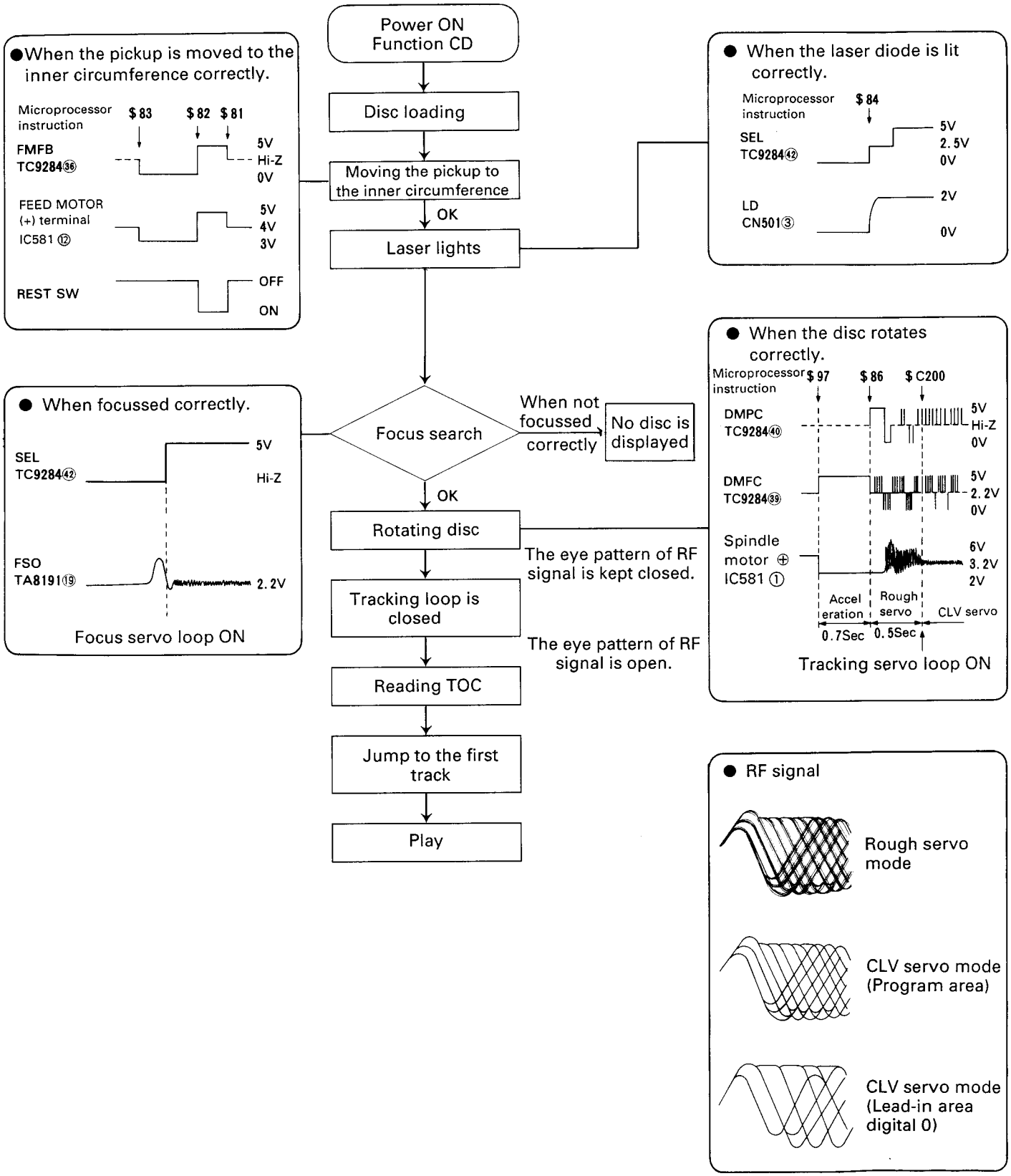


Fig. 4-1

■ General Section

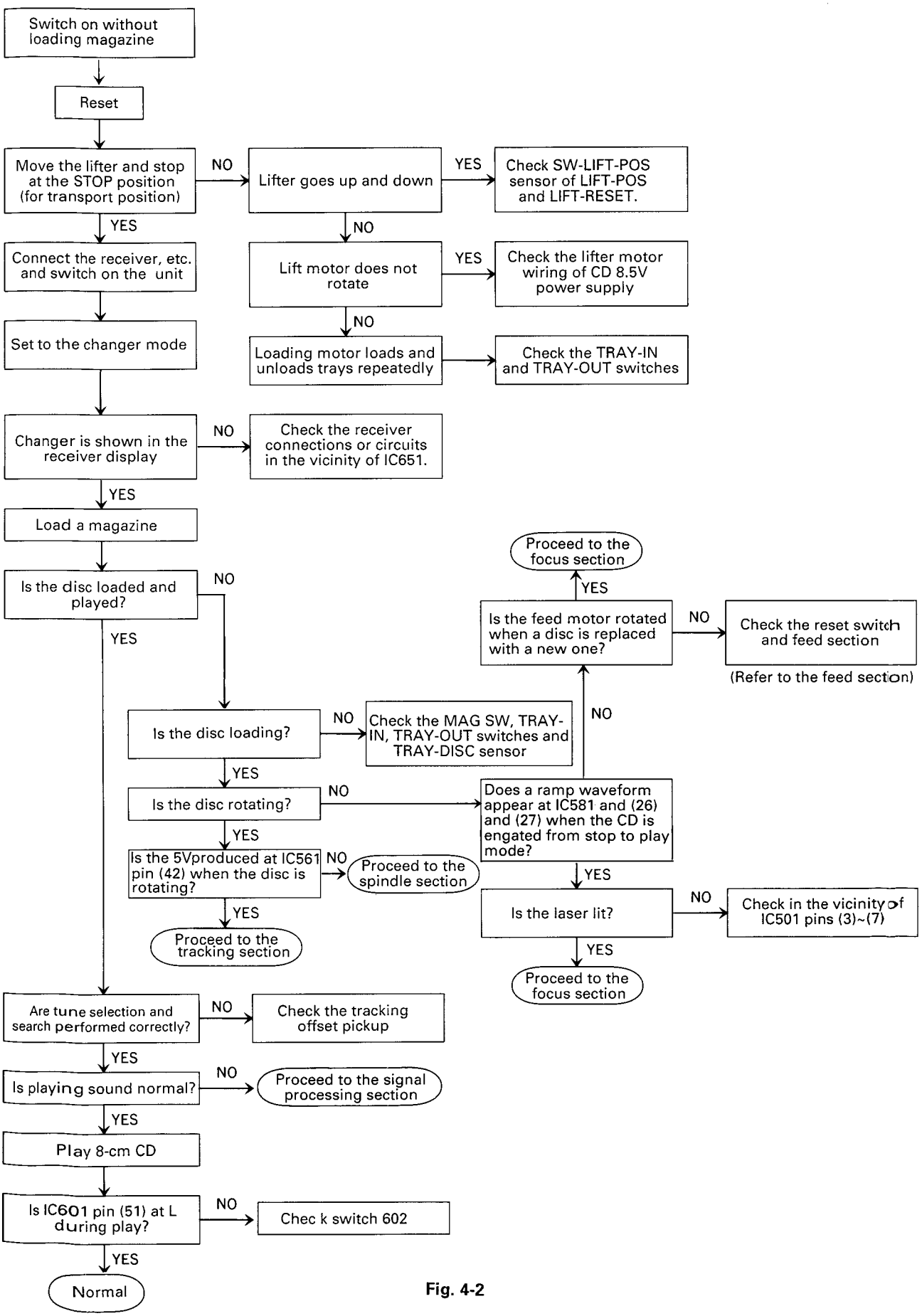

Switch on without loading magazine
Reset
Move the lifter and stop at the STOP position (for transport position)
NO
Lifter goes up and down
YES
Check SW-LIFT-POS sensor of LIFT-POS and LIFT-RESET.
YES
NO
Connect the receiver, etc. and switch on the unit
Lift motor does not rotate
YES
Check the lifter motor wiring of CD 8.5V power supply
NO
Set to the changer mode
Loading motor loads and unloads trays repeatedly
Check the TRAY-IN and TRAY-OUT switches
Changer is shown in the receiver display
NO
Check the receiver connections or circuits in the vicinity of IC651.
YES
Load a magazine
Is the disc loaded and played?
NO
YES
Proceed to the focus section
YES
Is the feed motor rotated when a disc is replaced with a new one?
NO
Check the reset switch and feed section
(Refer to the feed section)
Is the disc loading?
NO
Check the MAG SW, TRAY-IN, TRAY-OUT switches and TRAY-DISC sensor
NO
YES
Is the disc rotating?
NO
Does a ramp waveform appear at IC581 and (26) and (27) when the CD is engated from stop to play mode?
YES
Is the 5Vproduced at IC561 pin (42) when the disc is rotating?
NO
Proceed to the spindle section
YES
YES
Is the laser lit?
NO
Check in the vicinity of IC501 pins (3)~(7)
YES
Proceed to the tracking section
Proceed to the focus section
Are tune selection and search performed correctly?
NO
Check the tracking offset pickup
YES
Is playing sound normal?
NO
Proceed to the signal processing section
YES
Play 8-cm CD
Is IC601 pin (51) at L during play?
NO
Chec k switch 602
YES
Normal

Fig. 4-2

■ Feed Section

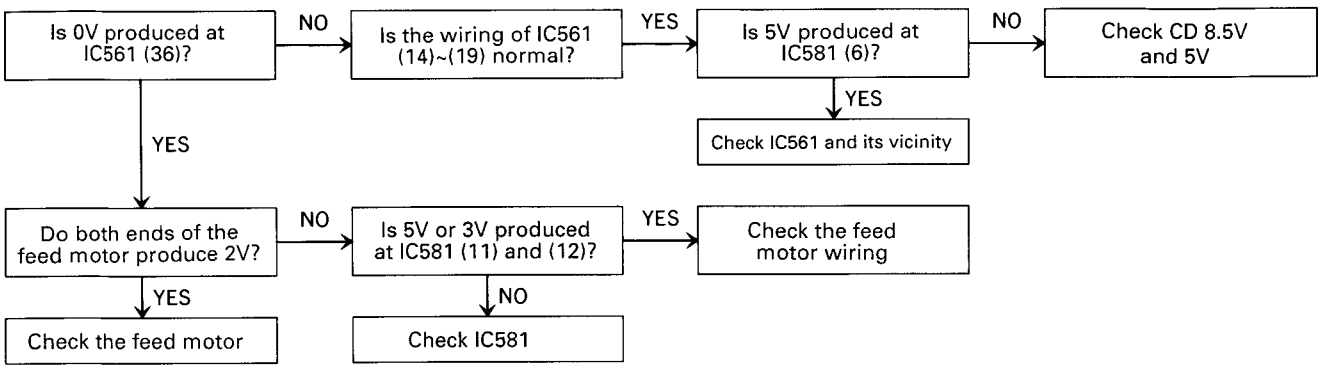


Fig. 4-3

■ Focus Section

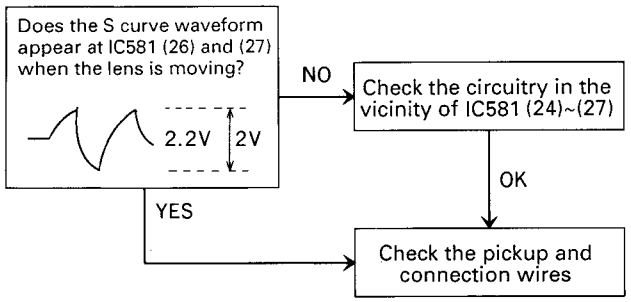

Does the S curve waveform appear at IC581 (26) and (27) when the lens is moving?
2.2V
2V
NO
Check the circuitry in the vicinity of IC581 (24)~(27)
OK
YES
Check the pickup and connection wires

Fig. 4-4

■ Spindle Motor Section

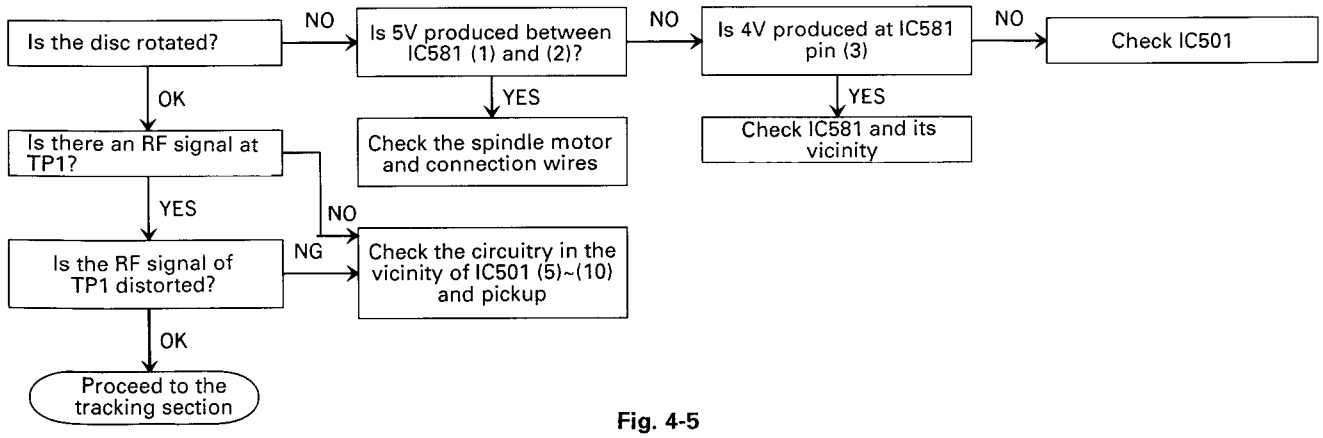


Fig. 4-5

■ Tracking Section

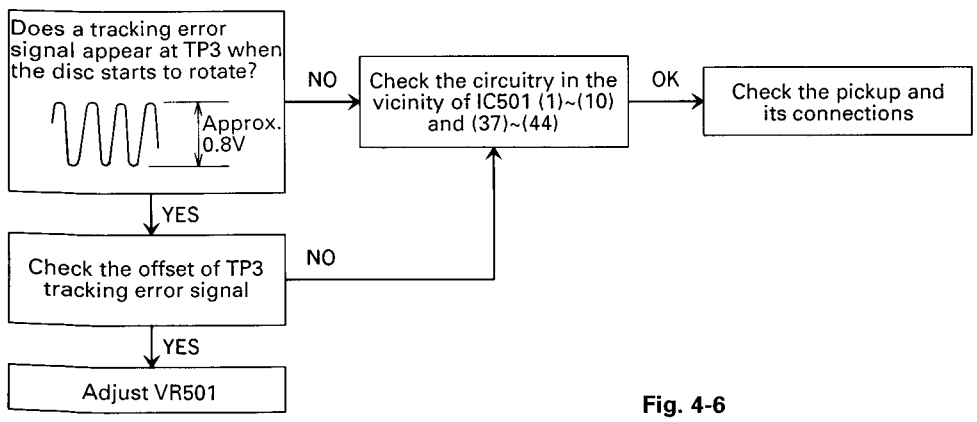

Does a tracking error signal appear at TP3 when the disc starts to rotate?
Approx. 0.8V
NO
Check the circuitry in the vicinity of IC501 (1)~(10) and (37)~(44)
OK
Check the pickup and its connections
YES
Check the offset of TP3 tracking error signal
NO
YES
Adjust VR501

Fig. 4-6

■ Signal Processing Section

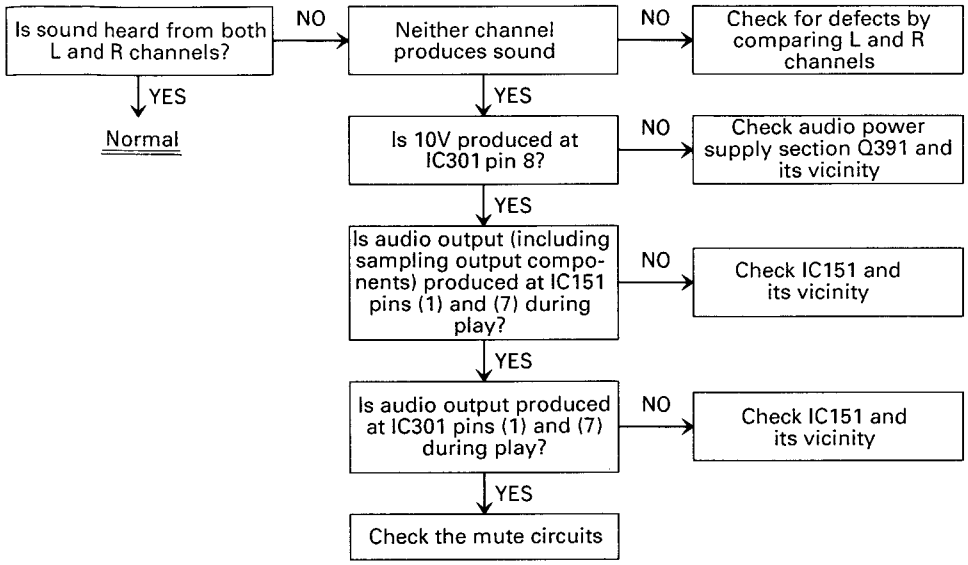

Is sound heard from both L and R channels?
NO
Neither channel produces sound
NO
Check for defects by comparing L and R channels
YES
Normal
YES
Is 10V produced at IC301 pin 8?
NO
Check audio power supply section Q391 and its vicinity
YES
Is audio output (including sampling output components) produced at IC151 pins (1) and (7) during play?
NO
Check IC151 and its vicinity
YES
Is audio output produced at IC301 pins (1) and (7) during play?
NO
Check IC151 and its vicinity
YES
Check the mute circuits

Fig. 4-7

5 Descrptions of pin function

Pin No.	Port names	I/O	Pin name	Descriptions	Connec-tion to	Active
1	P15/ANI5	I		(Connect to GND)		
2	P16/ANI6	I		(Connect to GND)		
3	P17/ANI7	I		(Connect to GND)		
4	AVSS	–	GND	GND		
5	P130/AN00	I		(Connect to GND)		
6	P131/AN01	I		(Connect to GND)		
7	AVREF1	–	VCC	5V power supply		
8	P70/SI2/RXD	I		(Connect to GND)		
9	P71/SO2/TXD	I		(Connect to GND)		
10	P72/SCK2/ASCK	I		(Connect to GND)		
11	P20/SI1	I		(Connect to GND)		
12	P21/SO1	I		(Connect to GND)		
13	P22/SCK1	I		(Connect to GND)		
14	P23/STB	I		(Connect to GND)		
15	P24/BUSY	O	JB_I/O	JVC BUS in/output control (L: Input)	74HC126	
16	P25/SI0/SB0	I	JB_SI	JVC BUS data input	74HC126	
17	P26/SO0/SB1	O	JB_SO	JVC BUS data output	74HC126	
18	P27 /SCK0	I/O	JB_SCK	JVC BUS clock in/output	74HC126	
19	P40/AD0	I		(Connect to GND)		
20	P41/AD1	I		(Connect to GND)		
21	P42/AD2	I		(Connect to GND)		
22	P43/AD3	I		(Connect to GND)		
23	P44/AD4	I		(Connect to GND)		
24	P45/AD5	I		(Connect to GND)		
25	P46/AD6	I		(Connect to GND)		
26	P47/AD7	I		(Connect to GND)		
27	P50/A8	I	EJ_MODE	Eject mode (L: EJECT. Without switch)		
28	P51/A9	I	TEMP_DET	Temperature detection pin (L: High temperature)		
29	P52/A10	O	PWR_CONT	Power control		H
30	P53/A11	O	EJ_LED	Eject or power display		H
31	P54/A12	I		(Connect to GND)		
32	P55/A13	I		(Connect to GND)		
33	VSS	–	GND	GND		
34	P56/A14	O	BUCK	CD LSI data clock	TC9284	
35	P57/A15	O	CCE	CD LSI chip enable	TC9284	
36	P60	I/O	BUS3	CD LSI data 3 (Open drain output)	TC9284	
37	P61	I/O	BUS2	CD LSI data 2 (Open drain output)	TC9284	
38	P62	I/O	BUS1	CD LSI data 1 (Open drain output)	TC9284	
39	P63	I/O	BUS0	CD LSI data 0 (Open drain output)	TC9284	
40	P64/RD	O		(Open)		
41	P65/WR	O		(Open)		

Pin No.	Port names	I/O	Pin name	Descriptions	Connec-tion to	Active
42	P66/WAIT	O	LSI_RESET	CD LSI reset	TC9284	L
43	P67/ASTB	O		(Open)		
44	P30/TO0	I	LIFT_POS	Lifter height detection sensor	Mechanism	
45	P31/TO1	I	MAG_SW	Magazine switch L: when loading	Mechanism	
46	P32/TO2	O	TRAY_M_1	Tray motor control	LB1831	
47	P33/TI1	O	TRAY_M_2	Tray motor control	LB1831	
48	P34/TI2	O	LIFT_M_2	Lift motor control	LB1831	
49	P36/PCL	O	LIFT_M_1	Lift motor control	LB1831	
50	P36/BUZ	I	REST_SW	Rest switch L: Home position	Mechanism	L
51	P37	I	8/12_SW	8-cm CD detection switch L: 8 cm	Mechanism	
52	P120/RTP0	I	LIFT_RES	Lifter reset switch	Mechanism	H
53	P121/RTP1	I	TRAY_OUT	Tray eject switch L: Ejection	Mechanism	L
54	P122/RTP2	I	TRAY_IN	Tray insertion switch L: Insertion completion	Mechanism	L
55	P123/RTP3	I	TRAY_DISC	Tray disc detection sensor	Mechanism	
56	P124/RTP4	O	_NATIVE	Native mode display (H: Native mode)		H
57	P125/RTP5	O	A_MUTE	Audio mute signal		L
58	P126/RTP6	O	MUTE_PWR	Power control for mute		H
59	P127/RTP7	O	CD_ON	CD power control H: ON		H
60	RESET	I	RESET	Reset input		L
61	P00/INTP0/T00	I	TEST_RUN	Test running pin (for line test)		L
62	P01/INTP1/T01	O	JB_BUSout	BUS output for JVC BUS		H
63	P02/INTP2	I	PWR_SW	CONT + B detection input		H
64	P03/INTP3	I	PWR_DET	Power voltage detection input		H
65	P04/INTP4	I	EJEC T_SW	Eject switch (When EJ mode is L, it can be also used as a DOOR SW)		L
66	P05/INTP5	I	DOOR_SW	Door switch		L
67	P06/INTP6	I	JB_INT	Interruption of JVC BUS communication	74HC126	H
68	VDD	–	VCC	5V power supply		
69	X2	O	X2	Oscillator (4.000 MHz)		
70	X1	I	X1	Oscillator (4.000 MHz)		
71	IC (VPP)	–	GND	GND		
72	XT2	O	XT2	(Open) * Set the subclock feedback resistor to off.		
73	XT1/P07	I	XT1	(Connect to GND)		
74	AVDD	–	VCC	5V power supply		
75	AVREF0	–	ON_B	5V power supply when power is switched on.		
76	P10/ANI0	I	KEY1	Key input 1 (A/D input) (for line test)		
77	P11/ANI1	I	KEY2	Key input 2 (A/D input) (for line test)		
78	P12/ANI2	I	KEY3	Key input 3 (A/D input) (for line test)		
79	P13/ANI3	I	TE_ADJ	For tracking adjustment. L: Q timer off		
80	P14/ANI4	I		(Connect to GND)		

6 Block diagram

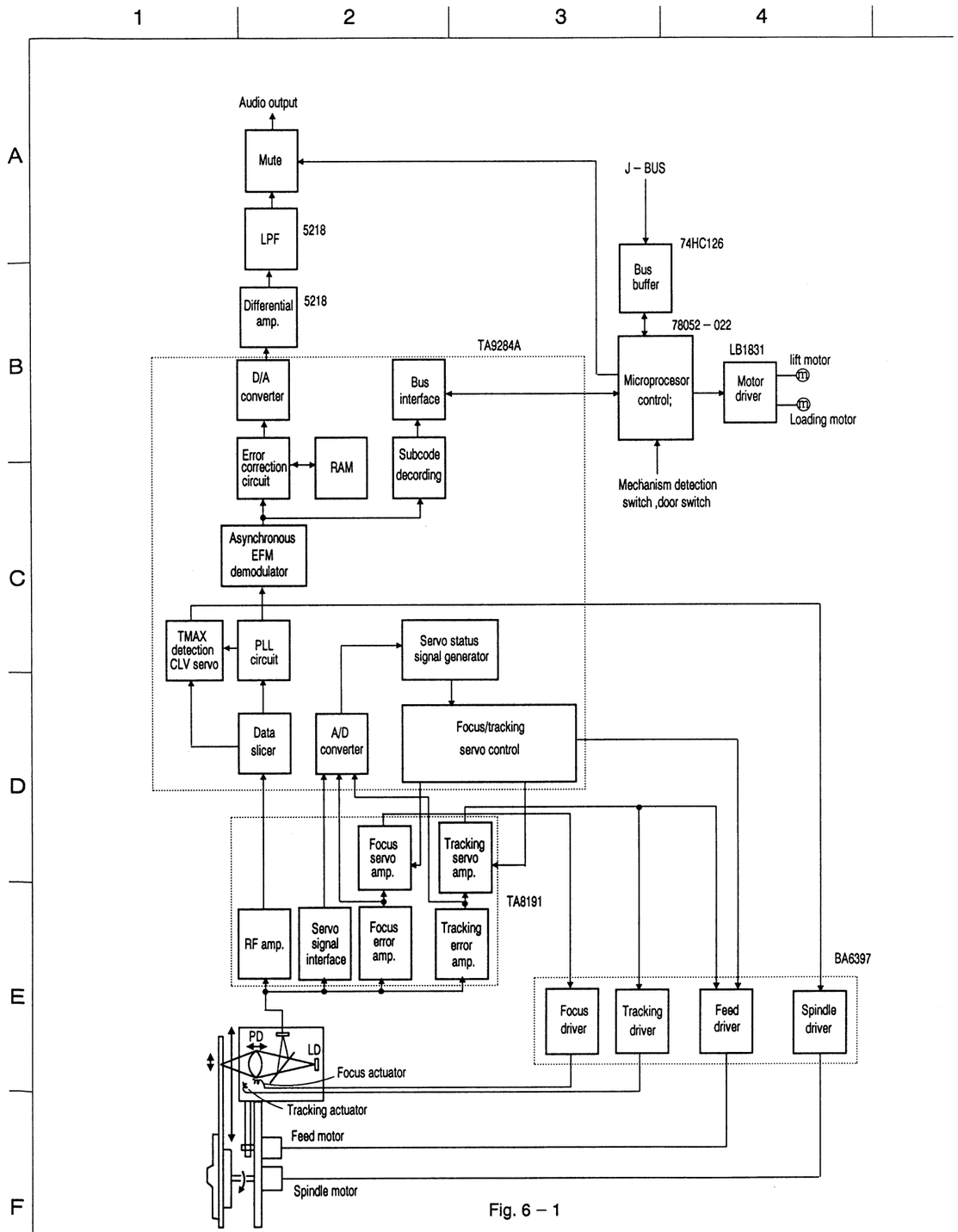


Fig. 6 – 1

7 Wiring connections

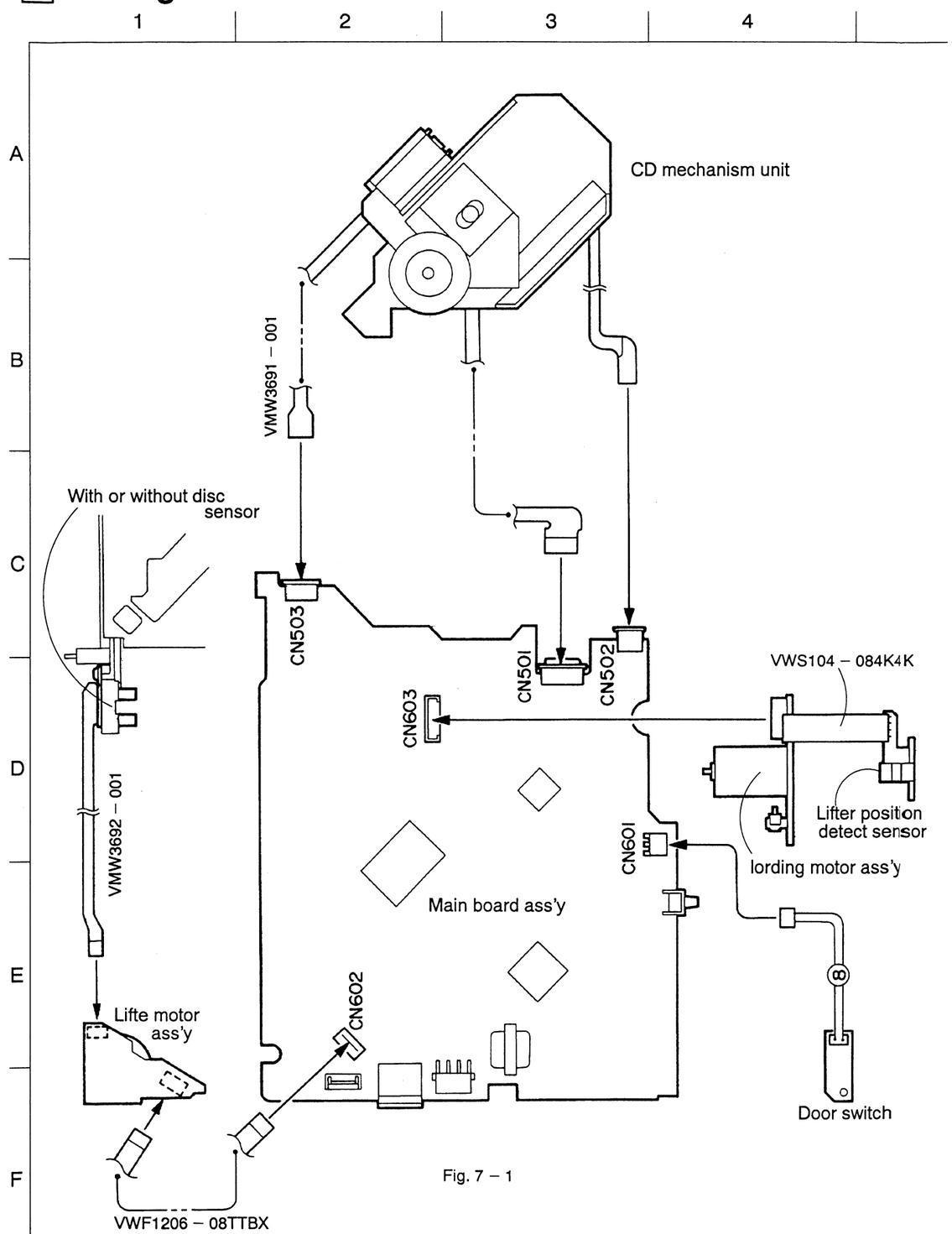


Fig. 7 – 1

8 Standerd scematic diagram

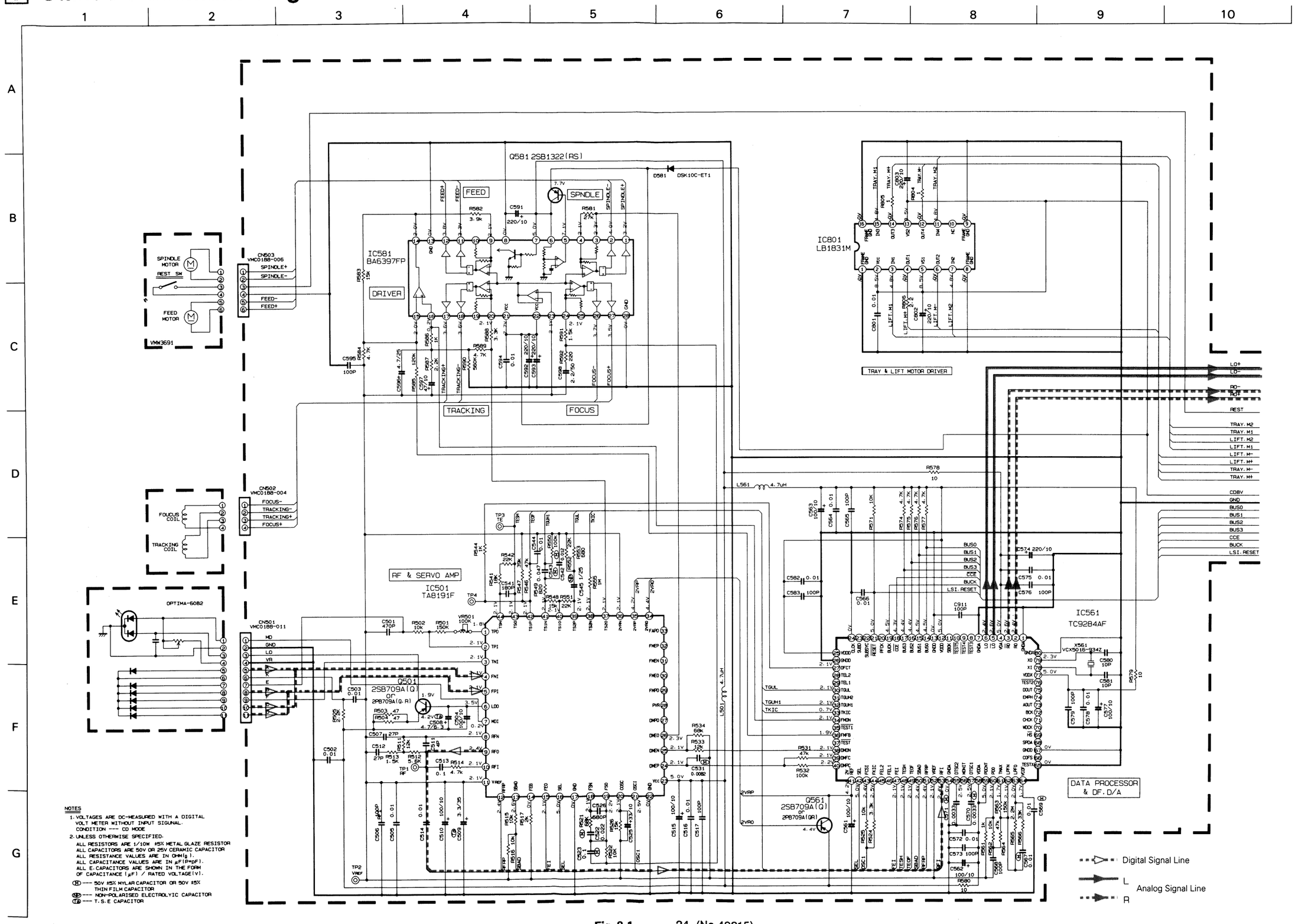


Fig. 8-1 24 (No.49215)

2SB709A(Q) or 2SB709A(Q, R)	Q901. Q922. Q931. Q951. Q961. Q971. Q973.
2SD601A(R) or 2SD601A(R)	Q601. Q602. Q603. Q921. Q972.
UN2211 or DTC114EK or MUN2211	Q681. Q902. Q932. Q944. Q962.
UN2111 or DTA114EK or MUN2111	Q943.
HSM2836C or MC2836	D301. D601. D911.
HSM2838C or M2838	D392. D921. D961.
M5218EP or BA15218F or XRA15218F	IC151. IC301.

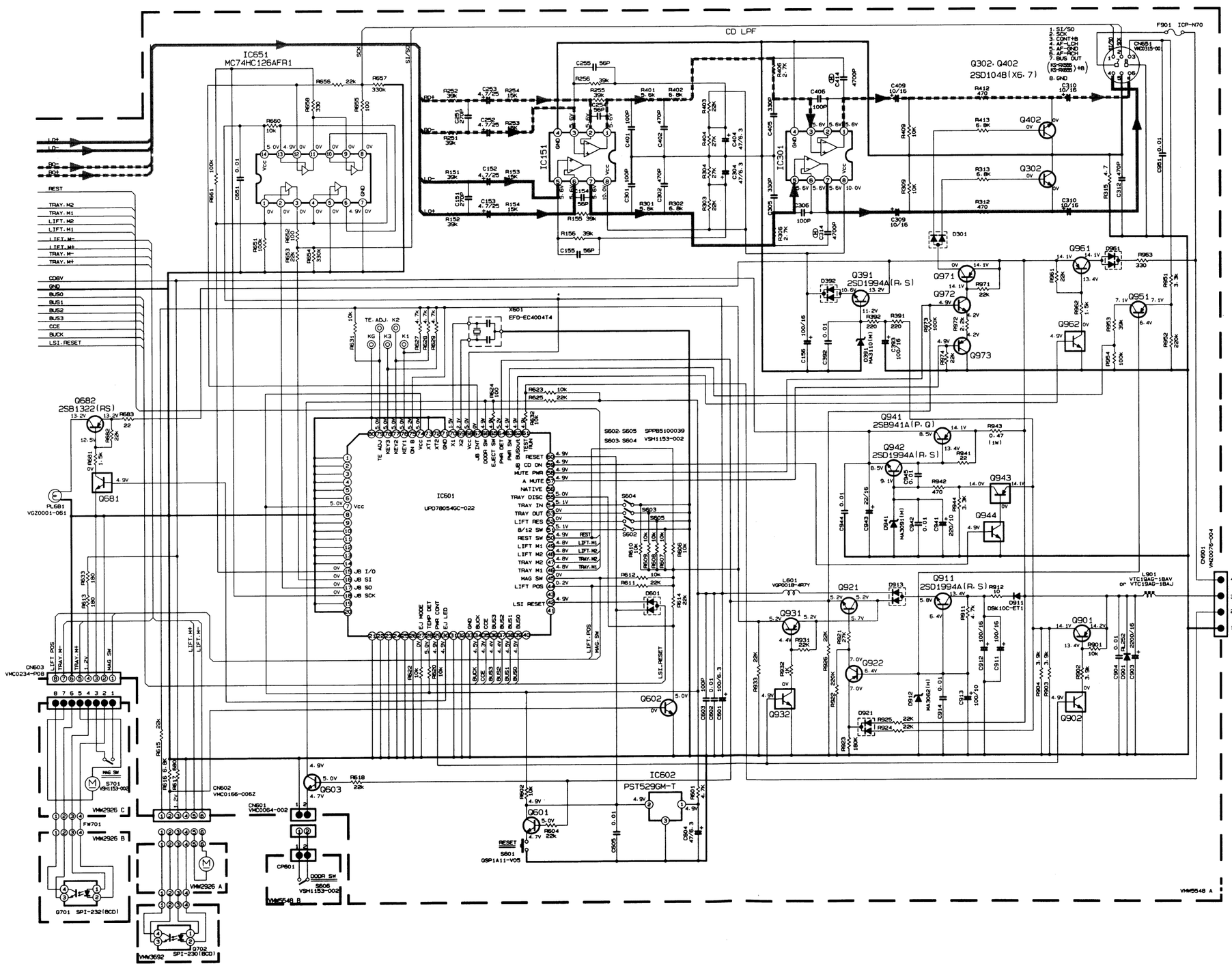


Fig. 8-2

9 Location of p.c.board parts

■ Main Board

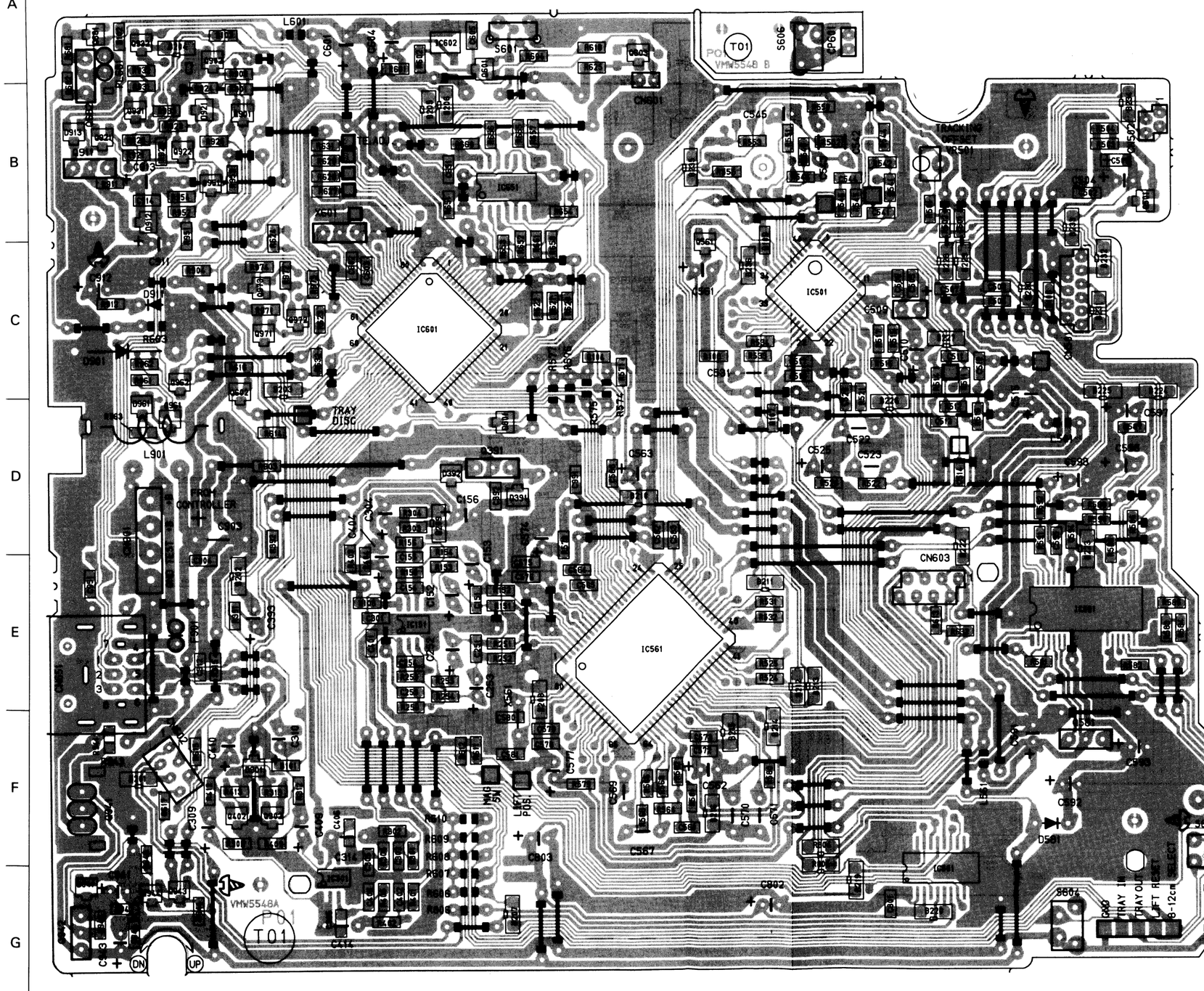


Fig. 9-1

■ Mechanism Board

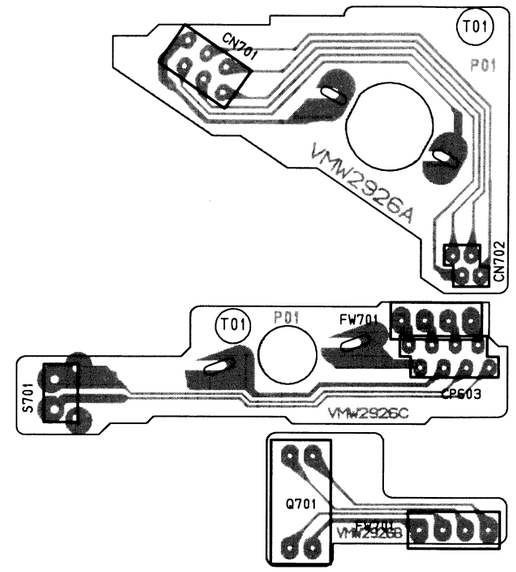


Fig. 9-2

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	C 571	QFLA1HJ-332ZM	M.CAPACITOR	3300PF 5% 50V	
	C 572	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 573	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 574	QERF1AM-227ZM	E.CAPACITOR	220MF 20% 10V	
	C 575	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 576	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 577	QER41AM-107ZM	E.CAPACITOR	100MF 20% 10V	
	C 578	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 579	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 580	NCS21HJ-100AY	C CAPACITOR	10PF 50V	
	C 581	NCS21HJ-100AY	C CAPACITOR	10PF 50V	
	C 582	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 583	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 591	QERF1AM-227ZM	E.CAPACITOR	220MF 20% 10V	
	C 592	QERF1AM-227ZM	E.CAPACITOR	220MF 20% 10V	
	C 593	QERF1AM-227ZM	E.CAPACITOR	220MF 20% 10V	
	C 594	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 595	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 596	QER41EM-475ZM	E.CAPACITOR	4.7MF 20% 25V	
	C 597	QERF1AM-476ZN	E.CAPACITOR	47MF 20% 10V	
	C 598	QER41HM-225ZN	E.CAPACITOR	2.2MF 20% 50V	
	C 601	QERF0JE-107ZM	E.CAPACITOR	100MF 20% 6.3V	
	C 602	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 603	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 604	QERF0JM-476ZN	E.CAPACITOR	47MF 20% 6.3V	
	C 605	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 651	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 801	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 802	QERF1AM-227ZM	E.CAPACITOR	220MF 20% 10V	
	C 803	QERF1AM-227ZM	E.CAPACITOR	220MF 20% 10V	
	C 903	QET41CR-228L16	E.CAPACITOR	2200MF +30:-10%	
	C 904	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 911	QERF1CM-107ZM	E.CAPACITOR	100MF 20% 16V	
	C 912	QERF1CM-107ZM	E.CAPACITOR	100MF 20% 16V	
	C 913	QERF1AM-107ZM	E.CAPACITOR	100MF 20% 10V	
	C 914	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 941	QERF1AM-227ZM	E.CAPACITOR	220MF 20% 10V	
	C 942	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 943	QER41CM-226ZN	E.CAPACITOR	22MF 20% 16V	
	C 944	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 945	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 951	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 991	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	CN501	VMC0188-011	CONNECTOR		
	CN502	VMC0188-004	CONNECTOR		
	CN503	VMC0188-006	CONNECTOR		
	CN601	VMC0064-002	CONNECTOR		
	CN602	VMC0163-006	CONNECTOR		
	CN603	VMC0234-P08	CONNECTOR		
	CN651	VMC0315-991	BF CONNECTOR	P.SUPPLY(TC9389	
	CN901	VMZ0076-004	CONNECTOR		
	D 301	HSM2836C	DIODE		
	D 391	MA3110(M)	ZENER DIODE		
	D 392	HSM2838C	DIODE		
	D 581	DSK10C-E	DIODE		

BLOCK NO. 01

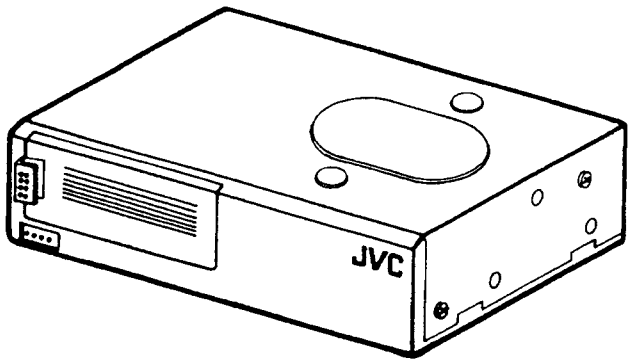
⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	D 601	HSM2836C	DIODE		
	D 901	RL252	SI DIODE		
	D 911	DSK10C-E	DIODE		
	D 912	MA3062(H)	ZENER DIODE		
	D 913	HSM2836C	DIODE		
	D 921	HSM2838C	DIODE		
	D 941	MA3091(M)	ZENER DIODE		
	D 961	HSM2838C	DIODE		
	F 901	ICP-N70	IC PROTECTER		
	IC151	M5218AFP	IC		J
	IC301	M5218AFP	IC		J
	IC501	TA8191F	IC		
	IC561	TC9284AF	IC		
	IC581	BA6397FP-T1	IC		
	IC601	UPD78052GC-022	MICOM IC		G,GE,GI,J
	IC601	UPD78052GC-022	OTP MICOM IC		J
	IC601	UPD78052GC-022	MICOM IC		B,C,E
	IC602	PST529GM-T	IC		
	IC651	MC74HC126AFR1	IC		
	IC801	LB1831M-TPT1	IC		
	L 501	VQP0018-4R7	INDUCTOR		
	L 561	VQP0018-4R7	INDUCTOR		
	L 601	VQP0018-4R7	INDUCTOR		
	L 901	VTC19AG-18AV	CHOKE COIL		
	PL681	VGZ0001-061	LAMP	CAP FOR RED	
	Q 302	2SD1048X7T-HL	TRANSISTOR		
	Q 391	2SD1994A(R,S)TA	TRANSISTOR		
	Q 402	2SD1048X7T-HL	TRANSISTOR		
	Q 501	2SB709A(Q)	TRANSISTOR		
	Q 561	2SB709A(Q)	TRANSISTOR		
	Q 581	2SB1322(RS)	TRANSISTOR		
	Q 601	2SD601A(R)	TRANSISTOR		
	Q 602	2SD601A(R)	TRANSISTOR		
	Q 603	2SD601A(R)	TRANSISTOR		
	Q 681	MUN2211T1	TRANSISTOR		
	Q 682	2SB1322(RS)	TRANSISTOR		
	Q 901	2SB709A(Q)	TRANSISTOR		
	Q 902	MUN2211T1	TRANSISTOR		
	Q 911	2SD1994A(R,S)TA	TRANSISTOR		
	Q 921	2SD601A(R)	TRANSISTOR		
	Q 922	2SB709A(Q)	TRANSISTOR		
	Q 931	2SB709A(Q)	TRANSISTOR		
	Q 932	MUN2211T1	TRANSISTOR		
	Q 941	2SB941A(P,Q)	TRANSISTOR		
	Q 942	2SD1994A(R,S)TA	TRANSISTOR		
	Q 943	MUN2111T1	TRANSISTOR		
	Q 944	MUN2211T1	TRANSISTOR		
	Q 951	2SB709A(Q)	TRANSISTOR		
	Q 961	2SB709A(Q)	TRANSISTOR		
	Q 962	MUN2211T1	TRANSISTOR		
	Q 971	2SB709A(Q)	TRANSISTOR		
	Q 972	2SD601A(R)	TRANSISTOR		
	Q 973	2SB709A(Q)	TRANSISTOR		
	R 151	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 152	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	

JVC

SERVICE MANUAL

COMPACT DISC AUTOMATIC CHANGER

KD-MK70 A/B/C/E/G/GE/GI/J/U



COMPACT disc DIGITAL AUDIO

Area Sufffix	
A	Australia
B	U.K.
C	Canada
E	Continental Europe
G	Germany
GE	Easterm Europe Austria and Switzland
GI	Italia
J	U.S.A.
U	Other areas

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No.49215
July 1994

■ Safety Precautions

J (USA) Only
Important for Laser Products

1. CLASS 1 LASER PRODUCT
2. DANGER: Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. CAUTION: Do not open the bottom cover. There are no user serviceable parts inside the unit; leave all servicing to qualified service personnel.
4. CAUTION: The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when unloading cartridge and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. CAUTION: Use of controls of adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
6. CAUTION: The laser is able to function, if safety switches are out of function. The laser light is invisible, avoid exposure, do not disassemble the laser unit, but replace the complete unit.

B/E/G Only
Important for Laser Products

1. CLASS 1 LASER PRODUCT
2. DANGER: Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. CAUTION: Do not open the bottom cover. There are no user serviceable parts inside the unit; leave all servicing to qualified service personnel.
4. CAUTION: The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when unloading cartridge and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. CAUTION: Use of controls of adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

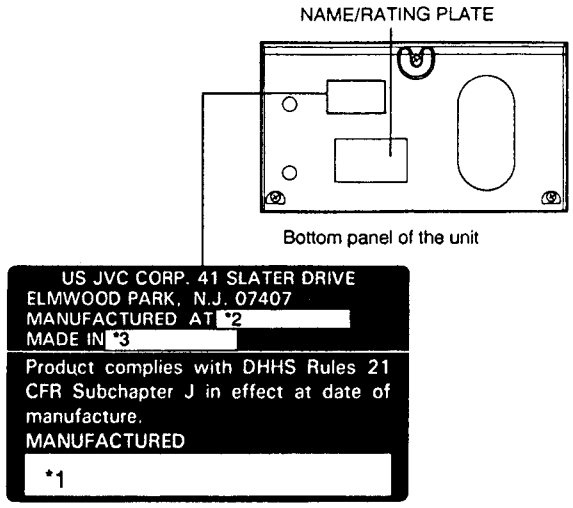
ADVERSEL: Usynlig laserstråling ved åbning. når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS: Varmuuskytkimen oliessa pois päältä kun laite avataan, siellä kehittyy näkymätöbtä lasersäteilä. Älä pane itseäsi säteilyn altiiksi.

VARNING: Osynlig laserståining uppstår vid komponentens öppning när säkerhetsbrytaren är frånslagen.

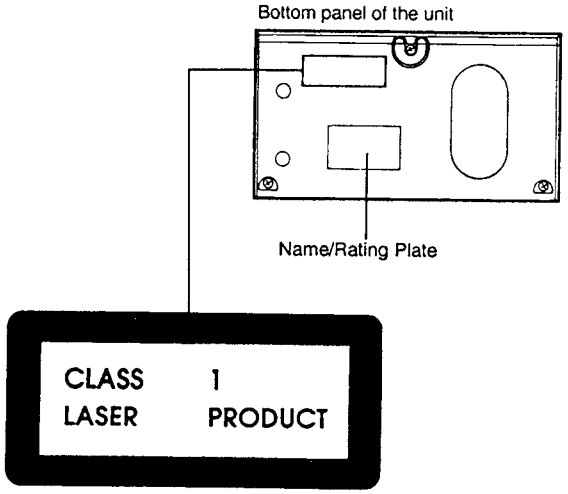
ADVARSEL: Usynling laserstråling ved åpning når sikkerhetsbryteren er ude af funktion Unngå utsettelse for stråling.

Identification And Certification Labels

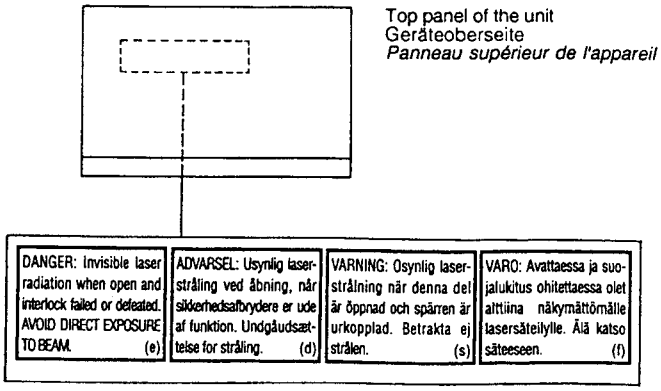

NAME/RATING PLATE
Bottom panel of the unit
US JVC CORP. 41 SLATER DRIVE
ELMWOOD PARK, N.J. 07407
MANUFACTURED AT *2
MADE IN *3
Product complies with DHHS Rules 21 CFR Subchapter J in effect at date of manufacture.
MANUFACTURED
*1

Notes
*1 The date of manufacture.
*2 The ID code of manufacturing plant.
*3 Marking of country origin.

Position And Reproduction Of Labels



Obs:
Apparaten innehåller laserkomponent av högre laserklass än klass 1.


Top panel of the unit
Geräteoberseite
Panneau supérieur de l'appareil
DANGER: Invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)
ADVARSEL: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgåudsættelse for stråling. (d)
VARNING: Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen. (s)
VARO: Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)

■ Instructions(Extracts)

SPECIFICATIONS

CD CHANGER SECTION
Frequency response: 5 – 20,000 Hz
Dynamic range: 93 dB
S/N ratio: 96 dB
Distortion: 0.006 %
Wow & flutter: Less than measurable limit
Output terminal: Analog (8 pin x 1), 1.5 V (Full scale)/Less than 1 kΩ
GENERAL
Power requirement
Operating voltage: DC 14.4 V (11 V — 16 V Allowable)
Grounding system: Negative ground
Dimensions (W x H x D):
273 x 75 x 171 mm
Gross Weight: 3.5 kg

Design and specifications subject to change without notice.

INSTALLATION

- Before installation, be sure to remove the screw and holder (shown by Ⓐ) for transportation. Now, stick the seals provided over the holes in the bottom of the unit. (Fig. a)

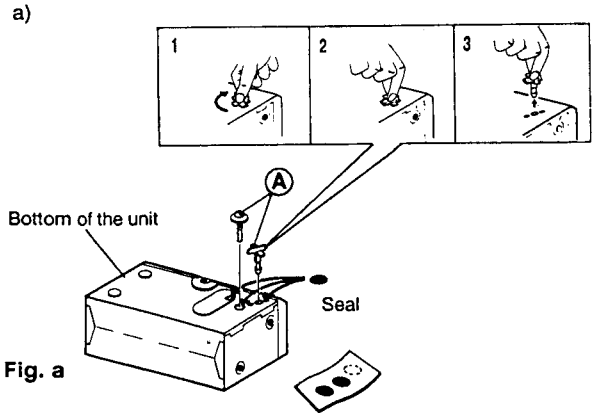


Fig. a

1. **Avoid installing in the following places**
   - Where it would be exposed to direct sunlight or heat directly from the heater or in an extremely hot place.
   - Where it would be subject to rain, water splashes or excessive humidity.
   - Where it would be subject to dust.
   - Where it would be positioned on an incline or unstable place.
   - Above connection cords or on the floor under which there is piping.
   - Where it could damage the car's fittings (spare tire, etc.) in or under the trunk.
2. Before drilling holes in the trunk to install the unit, make sure that there is a sufficient space under the trunk so that you do not drill holes in the fuel tank, etc.
3. Firmly install the unit using the provided screws.

(Example of installation A)

- **When installing on the floor of the trunk, etc. using the mounting base**

1. Stick spacer on the bottom of the mounting base. (Fig. b)
2. Remove the carpet from the place where the unit is to be installed and mark the position of the mounting base, then stick the mounting base on the floor. (Fig. c)

Note:
When sticking the mounting base on the floor, wipe off the surface dirt, oil, etc. and avoid installing on a concave or convex surface.

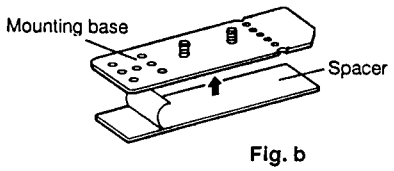


Fig. b

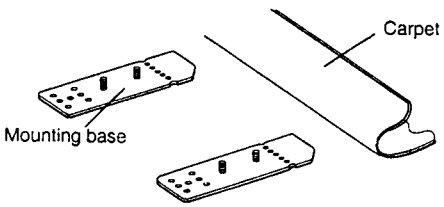
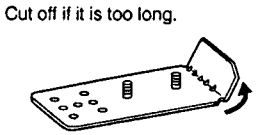


Fig. c



- **It is recommended that you install the unit directly using tapping screws when mistracking occurs. (See page 8.)**

3. Cut the carpet so the bolts fit through it. (Fig. d)

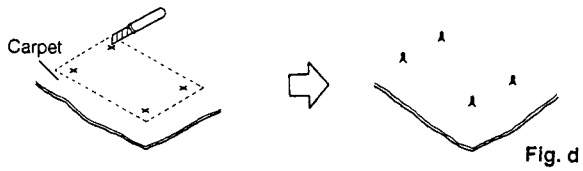
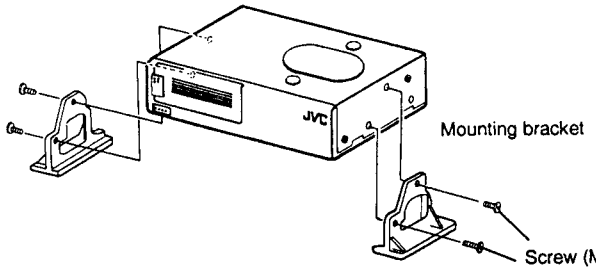
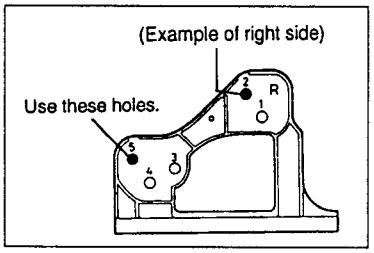


Fig. d

4. Install the mounting brackets on the side panels of the unit using screws (M4 x 8 mm). (Fig. e)





5. Place the unit on the carpet so that the bolts fit in the holes of the mounting bracket and install using washers and nuts (M5). (Fig. f)

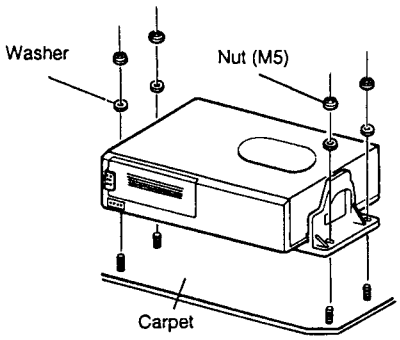


Fig. f

(Example of installation B)

- **When installing on the floor of the trunk, etc. using tapping screws**

1. Install the mounting brackets on the side panels of the unit using screws (M4 x 8 mm) referring to the diagram. (Fig. e)
2. Install the unit on the floor of the trunk using tapping screws. (Fig. g)

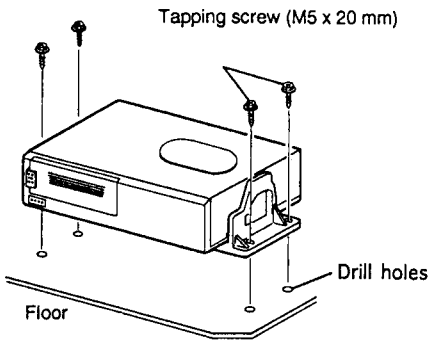
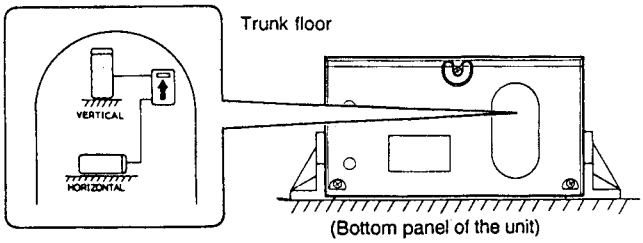
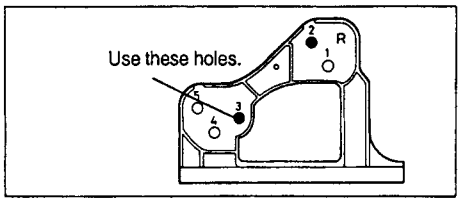


Fig. g

(Example of other installations)

- **When installing the CD changer upright on the trunk floor. (Fig. h)**





Notes:

1. To install, refer to the above "Example of installation A or B".
2. When the CD changer is installed upright, set the selector located at the bottom to the "VERTICAL" position. (When it is installed horizontally, be sure to set the selector to the "HORIZONTAL" position.)
   - When installing upright, securely install to the trunk floor.

- **When installing the CD changer to hang in the trunk space. (Fig. i)**

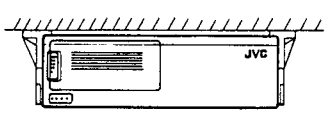
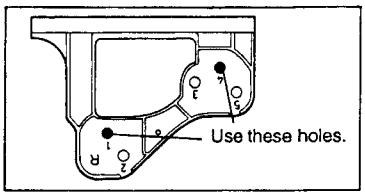


Fig. i



Note:
To install, refer to the above "Example of installation A or B".

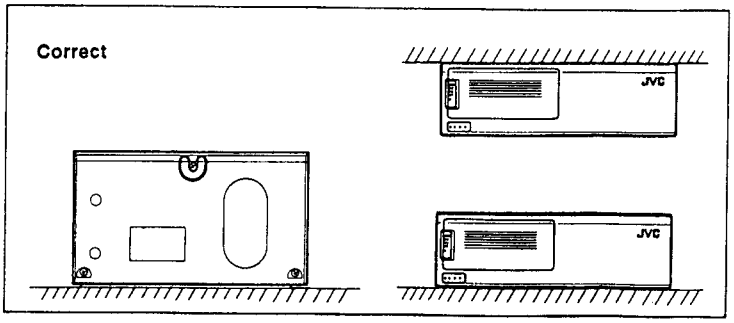


Fig. j
Abb. j

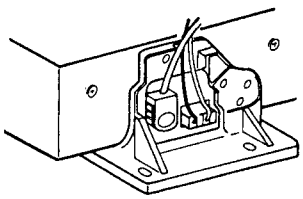
ELECTRICAL CONNECTIONS

To prevent short circuits from occurring, while making connections, keep the battery's negative terminal disconnected.
We recommend that you make all electrical connections (see Fig. k) before installing the unit. If you're not sure of your ability to correctly install this unit, have it installed by a qualified service technician.

- Be sure to ground this unit to the car's chassis.

Note:
This unit is designed for 12 volts DC, Negative Ground. If your vehicle does not have a 12 volt negative ground electrical system, you need a voltage inverter which can be bought from a JVC "IN-CAR ENTERTAINMENT" dealer.

Connections



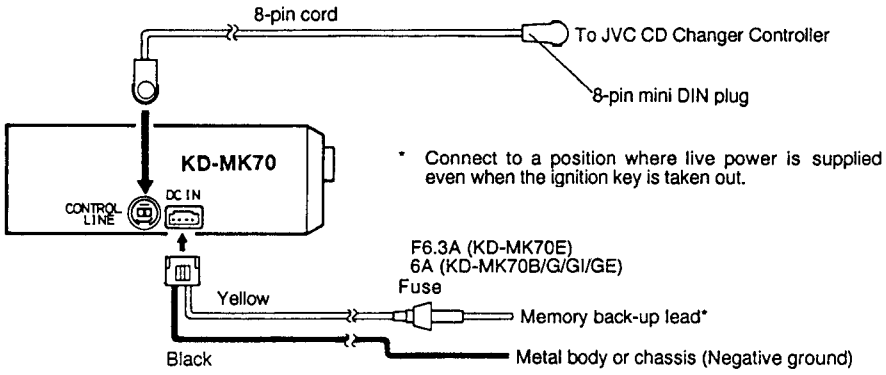


Fig. k

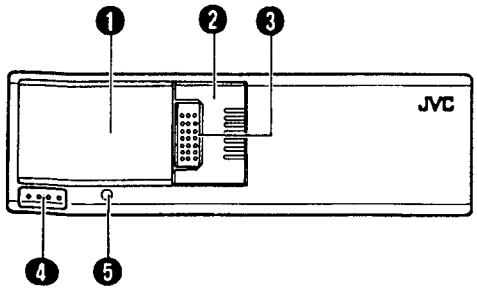
Note:
- The CD magazine cannot be ejected when the memory back-up lead or cord is disconnected or the fuse is blown.

Microcomputer reset button

After completing installation and connection, load the magazine and press the reset button using a ball-point pen or other pointed instrument to reset the microcomputer.

Normally do not use this button. However, when the power supply is interrupted such as for replacement of the car's battery, press this button. Also press it when the built-in microcomputer does not operate properly due to noise or when the changer does not function correctly when the controller is operated.

LOCATION OF CONTROLS



1. CD magazine slot
2. Door
3. Door LOCK knob
4. Door LOCK knob RELEASE button
5. Microcomputer reset button

HANDLING COMPACT DISCS AND MAGAZINES

How to handle magazines

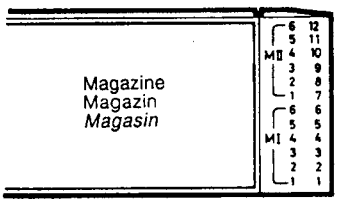
- **Care in handling magazines**

1. **Always keep twelve disc trays loaded in the magazine.**
2. When removing or inserting disc trays, hold the magazine horizontally.
3. Place compact discs on trays before inserting them in a magazine. Never put discs directly into magazines.
4. Do not expose it to high temperatures or direct sunlight.
5. Do not disassemble magazines.
6. Take care not to drop or hit magazines. Do not apply excessive pressure to disc trays which have been removed from magazines.
7. Never apply solvents such as benzine, thinner and insecticide to the magazine or disc trays. These solvents may erode their surfaces.

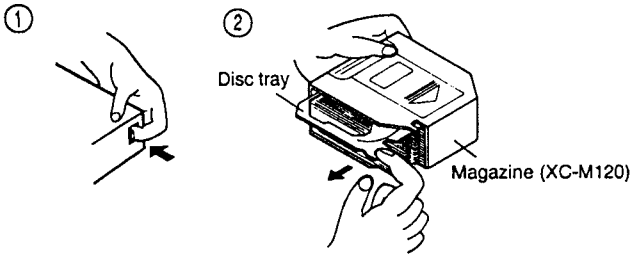
* Additional magazine (XC-M120) must be purchased separately.

- **How to load discs**

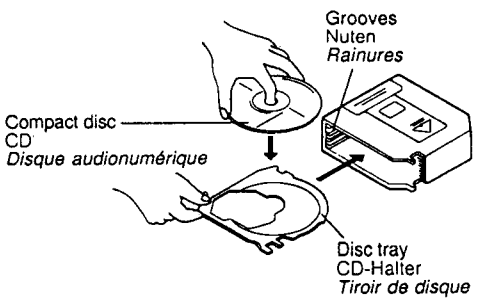
• The discs are in numerical order, with 1 at the bottom and 12 at the top. Load discs in the magazine in the required order.



1. Disc trays can be removed from magazines.
   ① While pressing the RELEASE button....
   ② Slide the disc tray partly out.



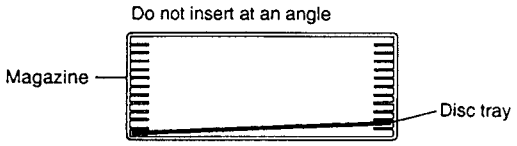
2. Pull the disc tray completely out of the magazine and place a CD on it with its label side up.



3. Line up the disc tray with the grooves in the magazine, and push the disc tray all the way in. Never bend or force the disc tray into the magazine. It is not necessary to depress the disc tray RELEASE button when inserting the disc tray.
   - Check that the disc tray is securely inserted into the magazine. If a CD becomes disengaged from the disc tray, reposition it on the disc tray.

Notes:

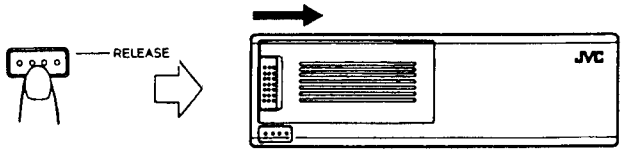
- If a disc tray is inserted at an angle, it may cause a malfunction.



- There are openings in the disc trays through which signals are read from the discs. These openings leave part of the shiny side of the disc exposed. Be careful not to touch the shiny surface of the disc.
- It is not possible to play a compact disc if it is installed upside down.
- Be sure to insert the twelve disc trays when using the magazine. If not, the CD changer may not operate correctly.

How to load a magazine

1. Press the RELEASE button to release the LOCK knob.
2. Open the door.



3. Load a magazine.
   - **Load a magazine into the CD changer with the "△" mark on top (Fig. I) and the CD insertion side to the right.**
   - If a magazine's label partly peels off, it may cause a malfunction. If this happens, remove the label or stick it on firmly again.

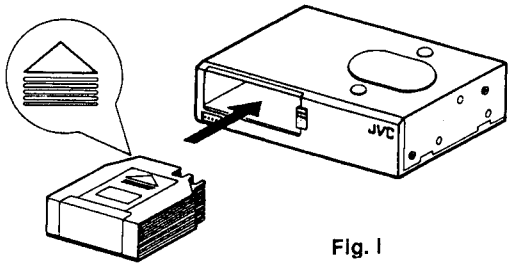
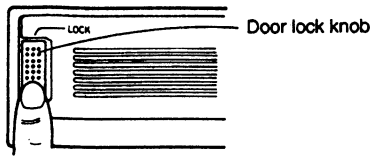


Fig. I

Note:

- **Do not insert your hands or any foreign object into the loading slot as you may be injured or cause malfunctions or damage.**

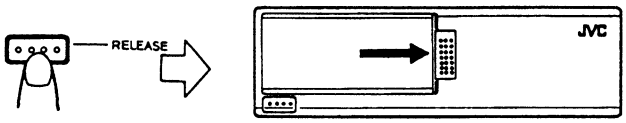
4. Close the door and press the LOCK knob to lock the door.



- The door should be closed other than when a magazine is loaded or unloaded.

How to unload a magazine

To unload a magazine, press the RELEASE button to release the LOCK knob. Then, open the door fully to the right side to eject the magazine.



Note:
When the magazine cannot be ejected, push in the magazine and play the 12th disc once more; when play has ended, repeat the above procedure (i.e., press the RELEASE button to open to the door).

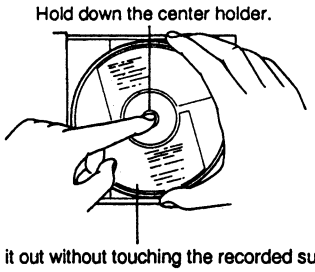
- **Listening to CDs**
  - This unit does not have operation buttons to play CDs. CD operations can be performed using the JVC CD changer controller, etc. connected to this unit. For CD operations, refer to the Instructions of the CD Changer Controller.

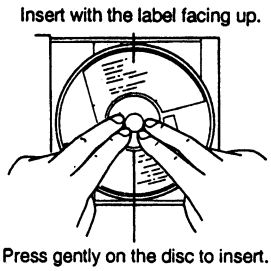
How to handle CDs

- Use compact discs with the mark shown.

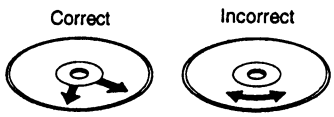
COMPACT disc DIGITAL AUDIO

- Do not touch the recorded surface of the disc (reflective side, opposite to the label) when handling the discs.
- **Storage**
  Make sure to keep discs in their cases. If discs are piled on top of one another without their cases, they may be damaged. Do not put discs where they will be exposed to direct sunlight or in a place subject to high temperatures and humidity. Avoid leaving discs in your car.





- **Maintenance of discs**
- When fingerprints and dirt adhere to a disc, wipe the disc clean with a soft, dry cloth, wiping from the inside towards the edge. If it is difficult to clean, wipe the disc with a cloth moistened with water.
- Do not use record cleaners, benzine, alcohol or antistatic agents.
- Do not damage the label side or stick paper or adhesive to the surface.



1 Location of main parts

◆ Top view

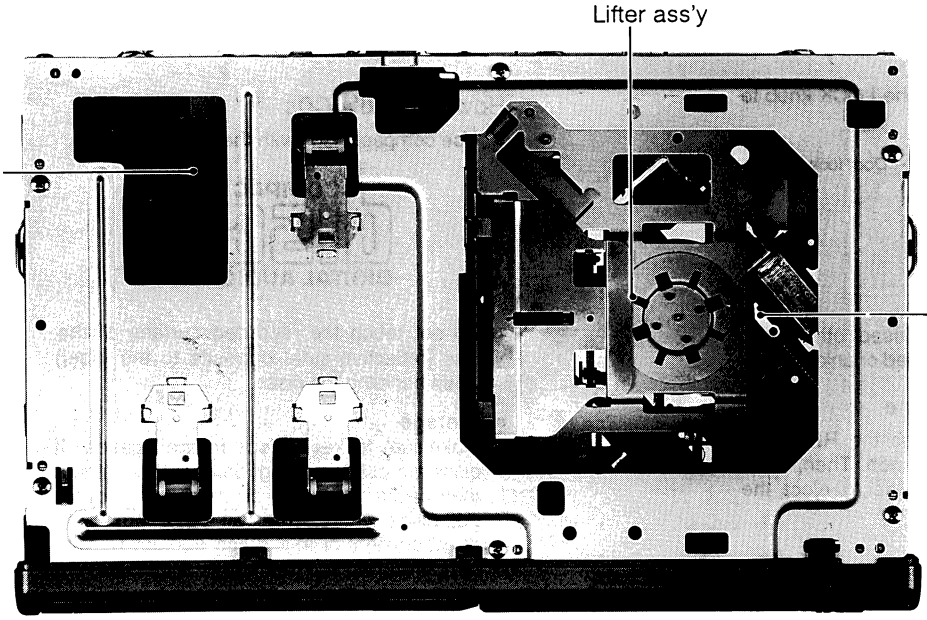


Fig. 1 – 1

◆ Bottom view

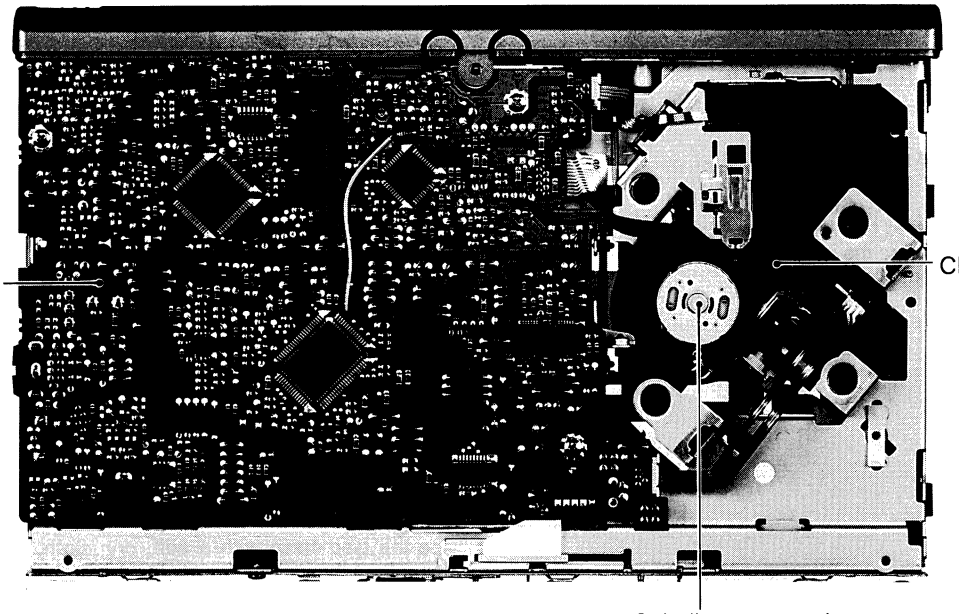


Fig. 1 – 2

◆ CD mechanism ass'y

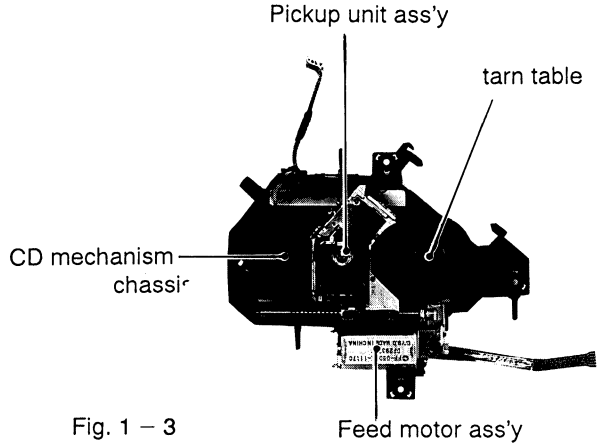


Fig. 1 – 3

■ Positioning diagram of switches and motors, etc.

◆ Top view

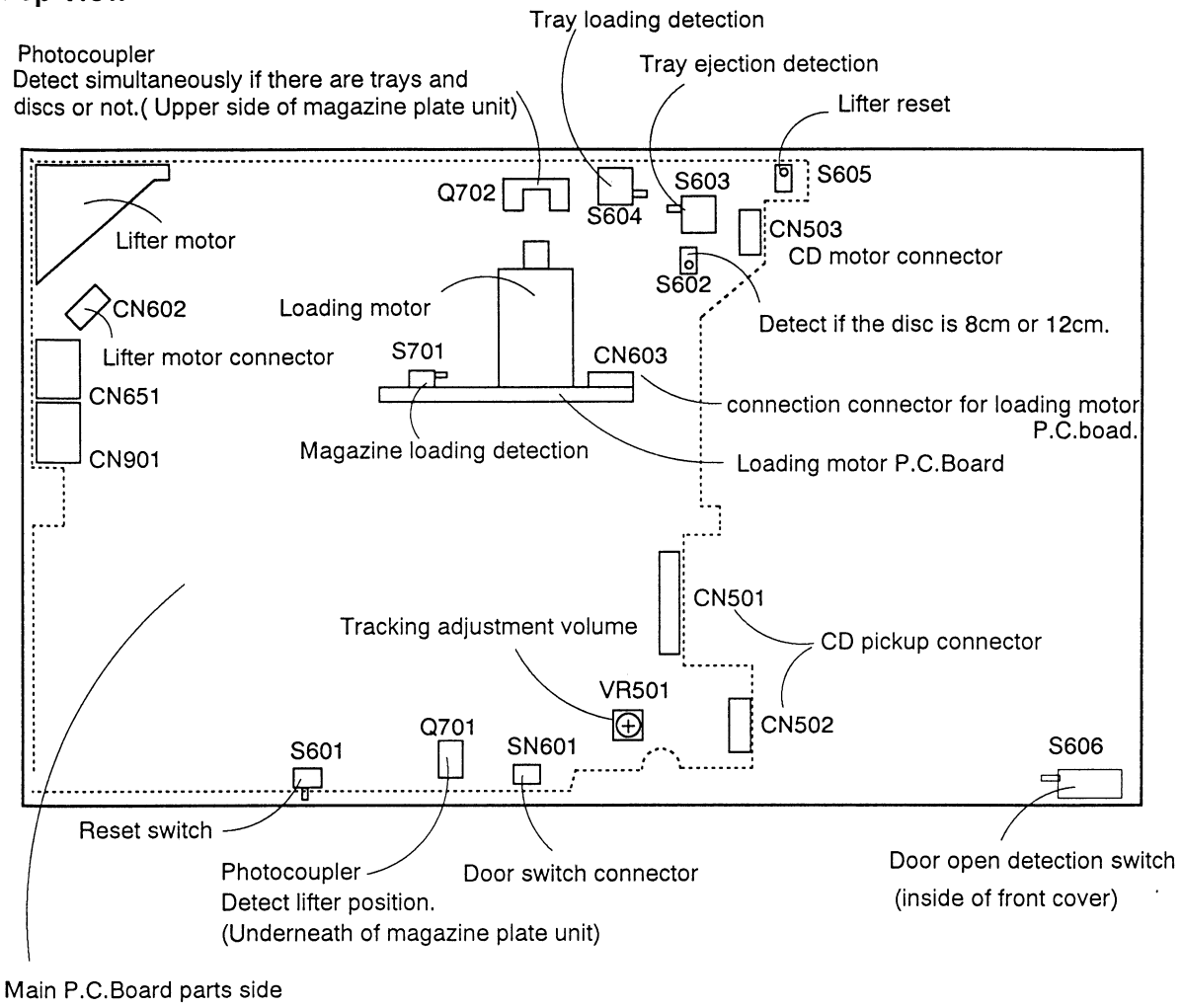


Fig. 1 – 4

★ Lifter motor and Q702 photocoupler can be seen from the top view.Other parts are indicated by cord, but not seen.

2 Removal of main parts

Procedures for removal of parts(Described considering assembly)

◆ Main P.C.B. Ass'y

Remove the four screws retaining the top cover, bottom cover, front panel ass'y and main P.C.B. Remove the flexible wire from the CD mechanism ass'y.

◆ Lifter Ass'y

Remove the top cover, bottom cover, front panel ass'y, top plate ass'y, rear panel ass'y and lifter ass'y.

◆ CD Mechanism

Remove the top cover, bottom cover, front panel ass'y, top plate ass'y, rear panel ass'y, lifter ass'y and CD mechanism ass'y.

◆ Magazine Plate Unit

Remove the top cover, bottom cover, front panel ass'y, top plate ass'y, rear panel ass'y and lifter ass'y and magazine plate unit.

◆ Loading Gear Ass'y

Remove the top cover, bottom cover, front panel ass'y, top plate ass'y, rear panel ass'y, lifter ass'y, magazine plate unit ass'y and loading gear ass'y.

Disassembly procedure for KD-MK70

■ External case sections

◆ Top Cover

1. Remove four retaining screws ① from the left and right.
2. Remove one screw ⑰ retaining the front side of top cover.
3. Remove by pushing the right side of top cover inward to lift it up.

◆ Bottom Cover

1. Remove two screws ② retaining the bottom cover.
2. Remove one screw ③ retaining center section of bottom cover.

◆ Front Panel

1. Slightly pull out the panel while disengaging the right and left tabs [A].
2. Remove the door switch connector (CN601) from the front panel door in the center of main P.C.B.

Left side view

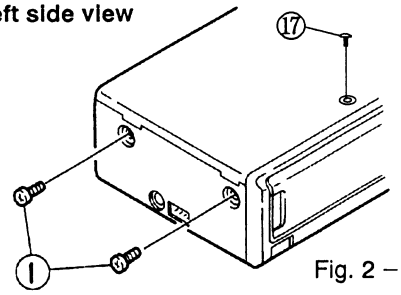


Fig. 2 – 1

Right side view

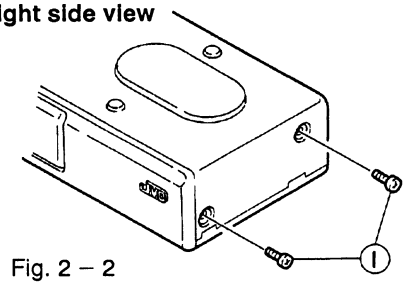


Fig. 2 – 2

Bottom view

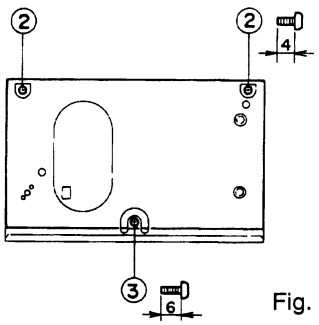


Fig. 2 – 3

Right side view

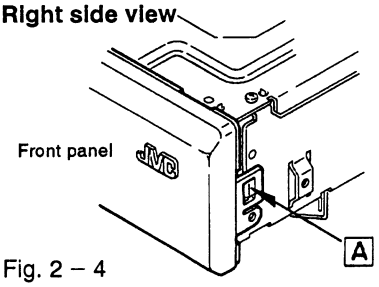


Fig. 2 – 4

Left side view

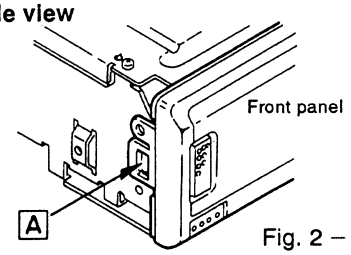


Fig. 2 – 5

Magazin loading section

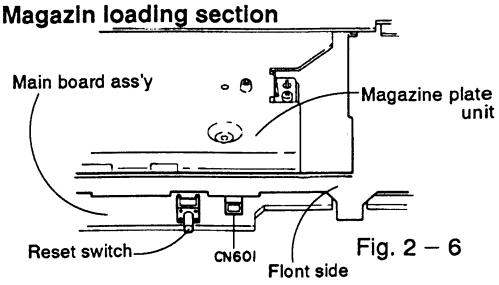


Fig. 2 – 6

■ Mechanism section (remove in the following order)

◆ Top Plate Ass'y

1. Remove the six screws ⑥ retaining the top plate.
2. Lift up the top plate and slide it to the front so that the safety rod is vertical, then remove it from the right side.

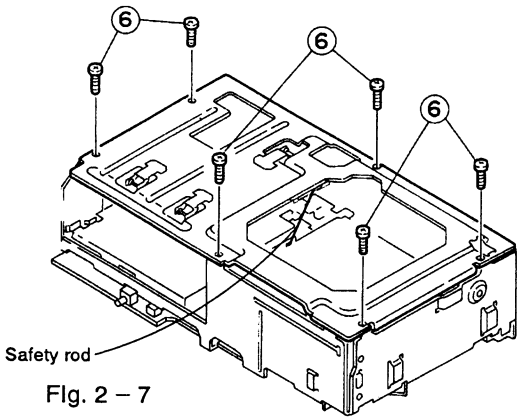
◆ Rear Panel

1. Remove the lifter tension arm spring.
2. Remove the one washer E ⑦ of lifter section.
3. Remove the lifter tension arm.

Note:

With the unit's front side facing you and the unit placed on its bottom, float the reset switch connected to the main P.C.B.

4. Turn the lifter motor clockwise from the main P.C.B. to elevate it to the uppermost position. (The torque of lifter motor is small.)
5. Remove three screws ⑧ retaining the rear panel to remove it.
6. Remove the flexible P.C.B. for the lifter ass'y sensor from the lifter motor P.C.B connector.
7. Remove the front side arm of lifter ass'y, then pull the lifter ass'y towards the magazine slot and remove it from the rear loading arm.



Flg. 2 – 7

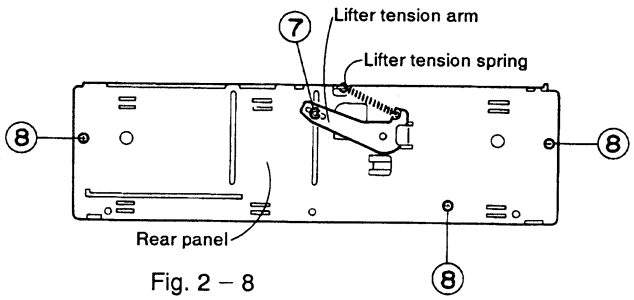


Fig. 2 – 8

Rear bottom view

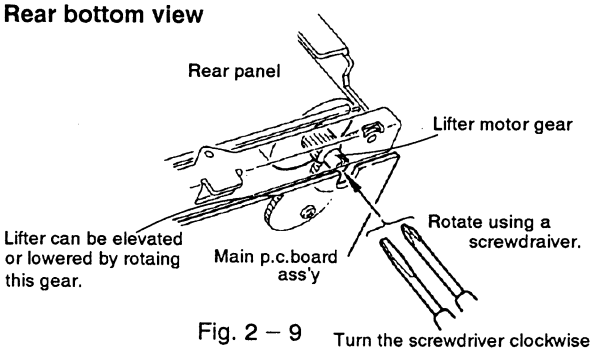

Rear panel
Lifter motor gear
Rotate using a screwdraiver.
Lifter can be elevated or lowered by rotaing this gear.
Main p.c.board ass'y
Turn the screwdriver clockwise to elevate the lifter.

Fig. 2 – 9

Rear side view

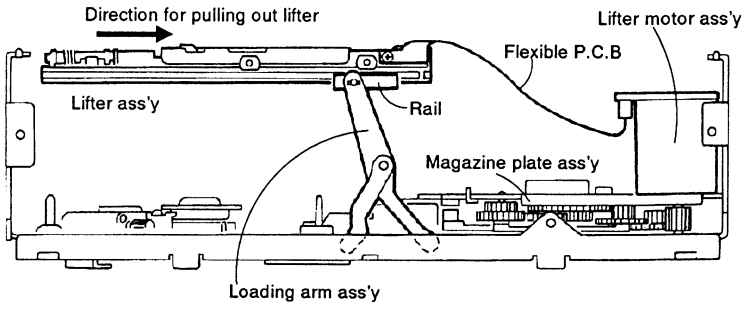


Fig. 2 – 10

◆ Magazine Plate Unit

1. Remove three screws ⑨ and ⑩ retaining the magazine plate unit.
2. Lift up the magazine plate unit to remove the lifter motor from the main P.C.B. connector.

◆ Loading Gear Ass'y

1. Remove one screw ⑪ retaining the loading gear and remove the connector between the main P.C.B. and motor P.C.B.

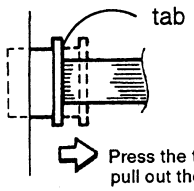
Note:

When the loading gear is removed, the internal gear is disengaged, so care should be taken when handling the gears. (Do not reassemble the gears by placing them in the wrong direction.)

2. Turn the slider gear counterclockwise (indicated by the arrow) and remove one screw ⑫ retaining the sensor.
3. Remove two screws ⑬ retaining the main P.C.B. to disengage the sensor.

◆ CD Mechanism Ass'y

1. Remove CD mechanism's three flexible wires (CN501, CN502, CN503) from the main P.C.B. ass'y. (Press the tabs in both side panels.)



2. Remove four tension springs between the CD mechanism and chassis.
3. Facing the front of the unit, remove the three screws ⑭ retaining the damper.
4. Remove the stopper by pressing section ⓐ indicated by the arrow to disengage the CD chassis hold arm.
5. Lift the chassis slightly and remove the CD mechanism ass'y, **(Be careful -- the coil springs are easily removed.)**

◆ Main P.C.B. Ass'y

1. Remove four screws ⑬ and ⑮ retaining the main P.C.B. ass'y.
2. Remove the one screw ⑯ reatining the transister.

Top View

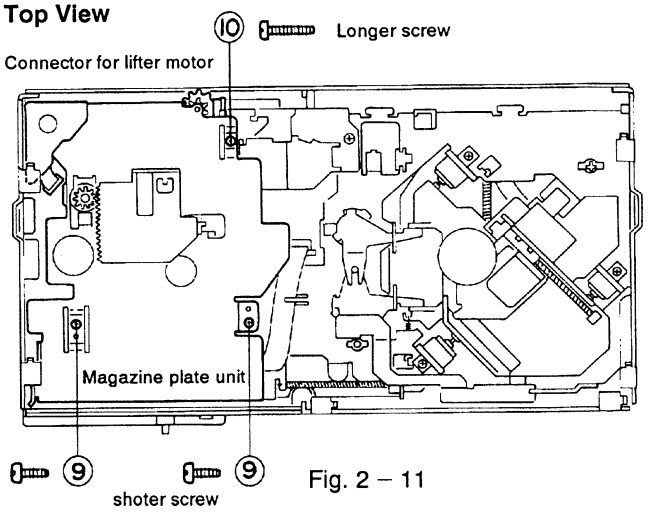


Fig. 2 – 11

Top View

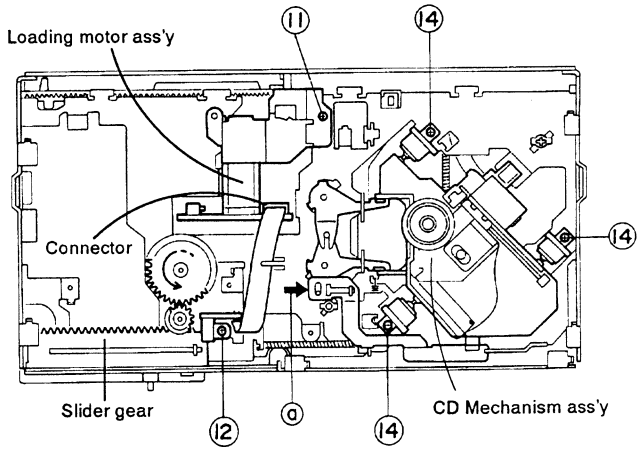


Fig. 2 – 12

Bottom View

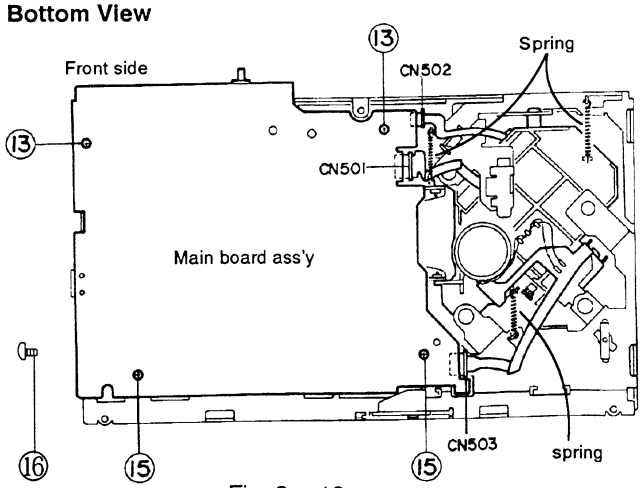


Fig. 2 – 13

■ Note When assembly

◆ Up/down gear position during chassis assembly

Install the center holes of the up/down gear and slider gear so that they are vertically aligned.

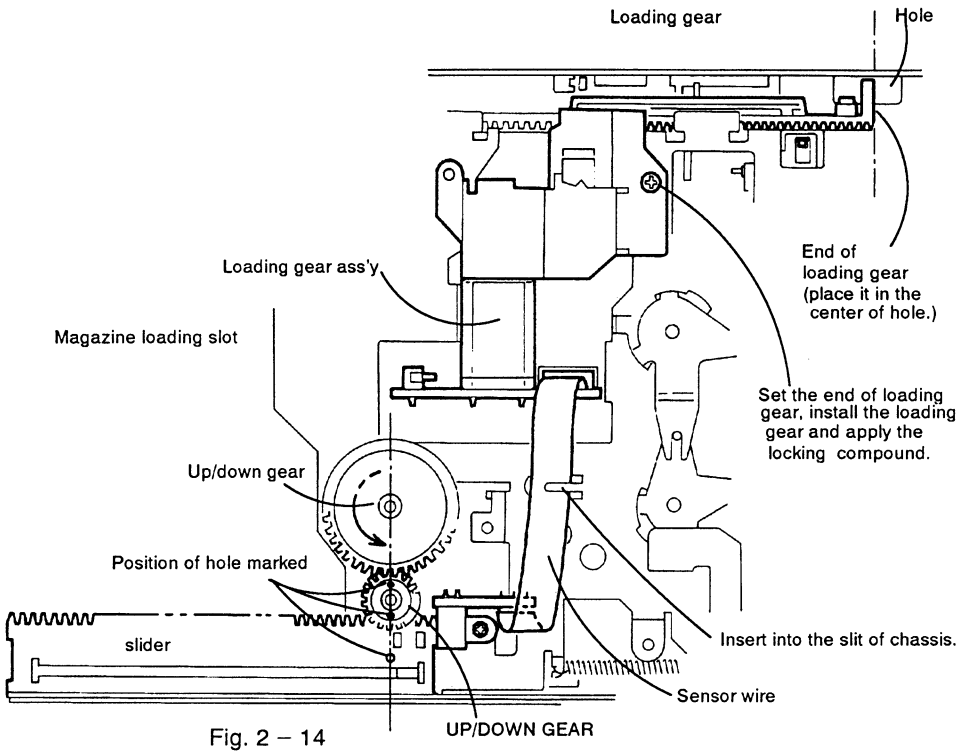

Loading gear
Hole
End of loading gear (place it in the center of hole.)
Loading gear ass'y
Magazine loading slot
Set the end of loading gear, install the loading gear and apply the locking compound.
Up/down gear
Position of hole marked
slider
Insert into the slit of chassis.
Sensor wire
UP/DOWN GEAR

Fig. 2 – 14

◆ Gear position when assembling the magazine plate unit

1. Align the gear positions of magazine plate unit ass'y with each other and install the gears in the chassis.
2. Note when installing the chassis.

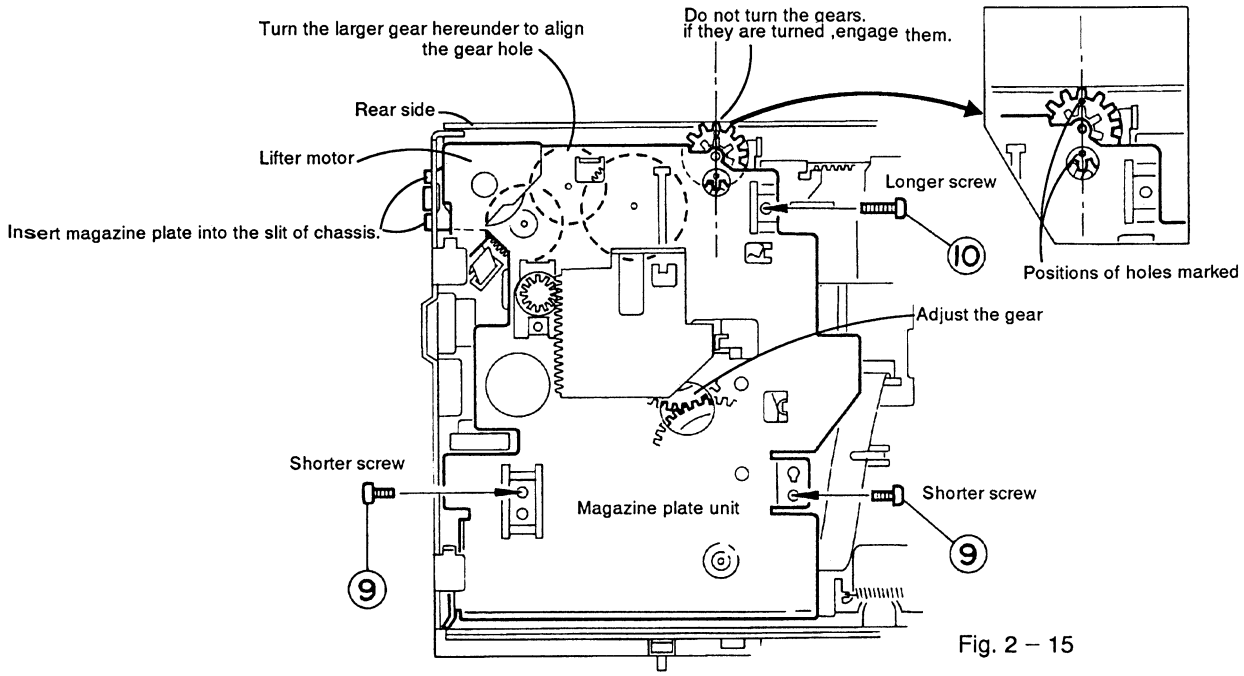


Fig. 2 – 15

◆CD Mechanism Ass'y

Procedure

1. Check that four suspension springs ㉜ and ㉝ are installed onto the CD mechanism chassis.
2. Check dampers' ㉚ installation and direction.
3. Press the flexible P.C.B. in the specified position.
4. Install section Ⓐ onto the chassis.
5. Set suspension spring Ⓒ in the chassis hole.
6. Assemble the CD mechanism unit while pressing section Ⓑ and set the remaining three suspensions according to the chassis guide.
7. Install the damper to the chassis.

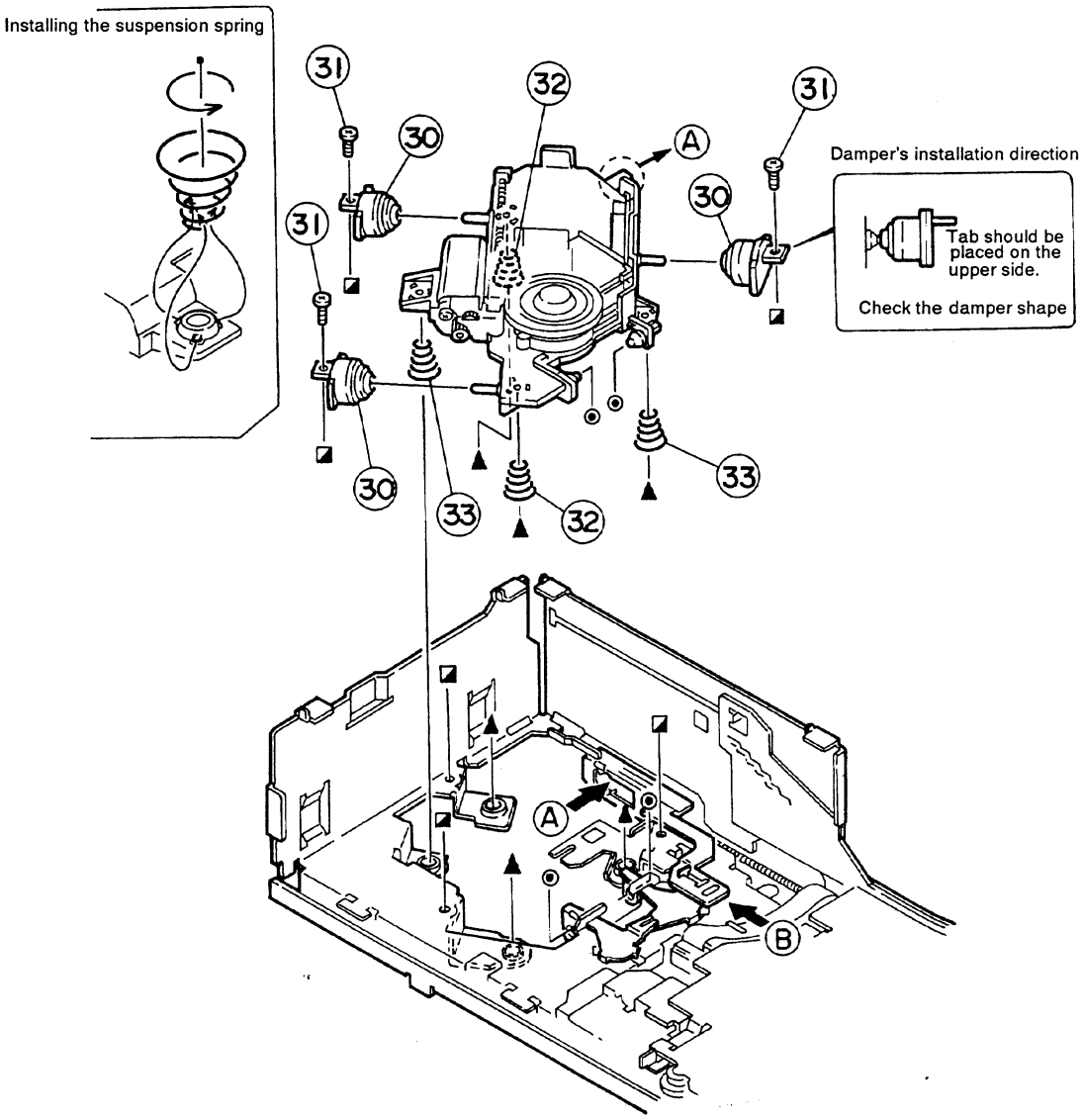


Fig. 2 – 16

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	R 153	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 154	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 155	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 156	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 251	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 252	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 253	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 254	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 255	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 256	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 301	NRSA02J-562NY	MG RESISTOR	5.6K 5% 1/10W	
	R 302	NRSA02J-682NY	MG RESISTOR	6.8K 5% 1/10W	
	R 303	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 304	NRSA02J-273NY	MG RESISTOR	27K 5% 1/10W	
	R 306	NRSA02J-272NY	MG RESISTOR	2.7K 5% 1/10W	
	R 309	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 312	NRSA02J-471NY	MG RESISTOR	470 5% 1/10W	
	R 313	NRSA02J-682NY	MG RESISTOR	6.8K 5% 1/10W	
	R 315	NRSA02J-4R7NY	MG RESISTOR	4.7 5% 1/10W	
	R 391	NRSA02J-221NY	MG RESISTOR	220 5% 1/10W	
	R 392	NRSA02J-221NY	MG RESISTOR	220 5% 1/10W	
	R 401	NRSA02J-562NY	MG RESISTOR	5.6K 5% 1/10W	
	R 402	NRSA02J-682NY	MG RESISTOR	6.8K 5% 1/10W	
	R 403	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 404	NRSA02J-273NY	MG RESISTOR	27K 5% 1/10W	
	R 406	NRSA02J-272NY	MG RESISTOR	2.7K 5% 1/10W	
	R 409	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 412	NRSA02J-471NY	MG RESISTOR	470 5% 1/10W	
	R 413	NRSA02J-682NY	MG RESISTOR	6.8K 5% 1/10W	
	R 501	NRSA02J-154NY	MG RESISTOR	150K 5% 1/10W	
	R 502	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 503	NRSA02J-470NY	MG RESISTOR	47 5% 1/10W	
	R 504	NRSA02J-470NY	MG RESISTOR	47 5% 1/10W	
	R 505	NRSA02J-222NY	MG RESISTOR	2.2K 5% 1/10W	
	R 511	NRSA02J-123NY	MG RESISTOR	12K 5% 1/10W	
	R 512	NRSA02J-562NY	MG RESISTOR	5.6K 5% 1/10W	
	R 513	NRSA02J-152NY	MG RESISTOR	1.5K 5% 1/10W	
	R 514	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 515	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 516	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 517	NRSA02J-202NY	CARBON RESISTOR	2.0K 5% 1/10W	
	R 521	NRSA02J-683NY	MG RESISTOR	68K 5% 1/10W	
	R 522	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 524	NRSA02J-332NY	MG RESISTOR	3.3K 5% 1/10W	
	R 525	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 526	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 531	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
	R 532	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 533	NRSA02J-123NY	MG RESISTOR	12K 5% 1/10W	
	R 534	NRSA02J-683NY	MG RESISTOR	68K 5% 1/10W	
	R 541	NRSA02J-183NY	MG RESISTOR	18K 5% 1/10W	
	R 542	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 544	NRSA02J-102NY	MG RESISTOR	1.0K 5% 1/10W	
	R 546	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
	R 547	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	R 548	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 549	NRSA02J-821NY	MG RESISTOR	820 5% 1/10W	
	R 550	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 551	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 552	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 553	NRSA02J-681NY	MG RESISTOR	680 5% 1/10W	
	R 555	NRSA02J-225NY	MG RESISTOR	1.0M 5% 1/10W	
	R 561	NRSA02J-102NY	MG RESISTOR	1.0K 5% 1/10W	
	R 562	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 563	NRSA02J-154NY	MG RESISTOR	150K 5% 1/10W	
	R 564	NRSA02J-473NY	MG RESISTOR	47K 5% 1/10W	
	R 565	NRSA02J-225NY	MG RESISTOR	2.2M 5% 1/10W	
	R 566	NRSA02J-333NY	MG RESISTOR	33K 5% 1/10W	
	R 571	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 574	QRD161J-472	CARBON RESISTOR	4.7K 5% 1/6W	
	R 575	QRD161J-472	CARBON RESISTOR	4.7K 5% 1/6W	
	R 576	QRD161J-472	CARBON RESISTOR	4.7K 5% 1/6W	
	R 577	QRD161J-472	CARBON RESISTOR	4.7K 5% 1/6W	
	R 578	NRSA02J-100NY	MG RESISTOR	10 5% 1/10W	
	R 579	NRSA02J-100NY	MG RESISTOR	10 5% 1/10W	
	R 580	NRSA02J-100NY	MG RESISTOR	10 5% 1/10W	
	R 581	NRSA02J-273NY	MG RESISTOR	27K 5% 1/10W	
	R 582	NRSA02J-392NY	MG RESISTOR	3.9K 5% 1/10W	
	R 583	NRSA02J-153NY	MG RESISTOR	15K 5% 1/10W	
	R 584	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 585	NRSA02J-124NY	MG RESISTOR	120K 5% 1/10W	
	R 586	NRSA02J-102NY	MG RESISTOR	1.0K 5% 1/10W	
	R 587	NRSA02J-222NY	MG RESISTOR	2.2K 5% 1/10W	
	R 588	NRSA02J-332NY	MG RESISTOR	3.3K 5% 1/10W	
	R 589	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 590	NRSA02J-564NY	MG RESISTOR	560K 5% 1/10W	
	R 591	NRSA02J-152NY	MG RESISTOR	1.5K 5% 1/10W	
	R 592	NRSA02J-221NY	MG RESISTOR	220 5% 1/10W	
	R 601	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 602	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 604	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 606	QRD161J-103	CARBON RESISTOR	10K 5% 1/6W	
	R 607	QRD161J-103	CARBON RESISTOR	10K 5% 1/6W	
	R 608	QRD161J-103	CARBON RESISTOR	10K 5% 1/6W	
	R 609	QRD161J-103	CARBON RESISTOR	10K 5% 1/6W	
	R 610	QRD161J-103	CARBON RESISTOR	10K 5% 1/6W	
	R 611	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 612	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 613	NRSA02J-181NY	MG RESISTOR	180 5% 1/10W	
	R 614	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 615	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 616	NRSA02J-682NY	MG RESISTOR	6.8K 5% 1/10W	
	R 617	NRSA02J-681NY	MG RESISTOR	680 5% 1/10W	
	R 618	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 620	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 622	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 623	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 624	NRSA02J-101NY	MG RESISTOR	100 5% 1/10W	
	R 625	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 627	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	R 628	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 629	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 631	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 632	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 633	NRSA02J-181NY	MG RESISTOR	180 5% 1/10W	
	R 651	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 652	NRSA02J-101NY	MG RESISTOR	100 5% 1/10W	
	R 653	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 654	NRSA02J-334NY	MG RESISTOR	330K 5% 1/10W	
	R 655	NRSA02J-101NY	MG RESISTOR	100 5% 1/10W	
	R 656	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 657	NRSA02J-334NY	MG RESISTOR	330K 5% 1/10W	
	R 658	NRSA02J-331NY	MG RESISTOR	330 5% 1/10W	
	R 660	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 661	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 681	NRSA02J-152NY	MG RESISTOR	1.5K 5% 1/10W	
	R 682	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 683	QRD161J-220	CARBON RESISTOR	22 5% 1/6W	
	R 804	NRS181J-1RONY	MG RESISTOR	1.0 5% 1/8W	
	R 805	NRS181J-1RONY	MG RESISTOR	1.0 5% 1/8W	
	R 806	QRD161J-2R2	CARBON RESISTOR	B323 ノ ｲﾁ	
	R 901	NRSA02J-103NY	MG RESISTOR	10K 5% 1/10W	
	R 902	NRSA02J-392NY	MG RESISTOR	3.9K 5% 1/10W	
	R 903	NRSA02J-392NY	MG RESISTOR	3.9K 5% 1/10W	
	R 904	NRSA02J-392NY	MG RESISTOR	3.9K 5% 1/10W	
	R 911	NRSA02J-472NY	MG RESISTOR	4.7K 5% 1/10W	
	R 912	NRSA02J-100NY	MG RESISTOR	10 5% 1/10W	
	R 921	NRSA02J-273NY	MG RESISTOR	27K 5% 1/10W	
	R 922	NRSA02J-224NY	MG RESISTOR	220K 5% 1/10W	
	R 923	NRSA02J-184NY	MG RESISTOR	180K 5% 1/10W	
	R 924	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 925	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 926	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 931	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 932	NRSA02J-102NY	MG RESISTOR	1.0K 5% 1/10W	
	R 933	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 941	NRSA02J-220NY	MG RESISTOR	22 5% 1/10W	
	R 942	NRSA02J-471NY	MG RESISTOR	470 5% 1/10W	
	R 943	QRX01DJ-R47X	M.F.RESISTOR	5% 1/1W	
	R 944	NRSA02J-332NY	MG RESISTOR	3.3K 5% 1/10W	
	R 951	NRSA02J-332NY	MG RESISTOR	3.3K 5% 1/10W	
	R 952	NRSA02J-224NY	MG RESISTOR	220K 5% 1/10W	
	R 953	NRSA02J-393NY	MG RESISTOR	39K 5% 1/10W	
	R 954	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 961	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 962	NRSA02J-152NY	MG RESISTOR	1.5K 5% 1/10W	
	R 963	NRSA02J-331NY	MG RESISTOR	330 5% 1/10W	
	R 971	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	R 972	NRSA02J-222NY	MG RESISTOR	2.2K 5% 1/10W	
	R 973	NRSA02J-104NY	MG RESISTOR	100K 5% 1/10W	
	R 974	NRSA02J-223NY	MG RESISTOR	22K 5% 1/10W	
	S 601	QSQ1A11-V05	TACT SWITCH	ﾌﾙ7°ﾑ SKHHLQ000	
	S 602	VSH1154-002	SWITCH	8/12 SW	
	S 603	VSH1153-002	SWITCH	TRAY OUT SW	
	S 604	VSH1153-002	SWITCH	TRAY IN SW	

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	S 605	VSH1154-002	SWITCH	LIFT POS SW	
	S 606	VSH1153-002	SWITCH		
	VR501	QVZ3523-104	V.RESISTOR		
	X 561	VCX5016-934Z	CRYSTAL		
	X 601	EFO-EC4004T4	CERA LOCK		

● Mechanism board parts list

BLOCK NO. 02

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	CN701	VMC0163-006	CONNECTOR		
	CN702	VMC0125-004	CONNECTOR		
	CP603	VMC0234-R08	CONNECTOR		
	Q 701	SPI-232(B,C,D)	PHOTOINTERRUPT	LIFTER DETECT	
	Q 702	SPI-230(B,C,D)	PHOTOINTERRUPT	DISC TRAY DET.	
	S 701	VSH1153-001	SWITCH	MAGAZIN DETECT	

10 Exploded view of mechanism component parts

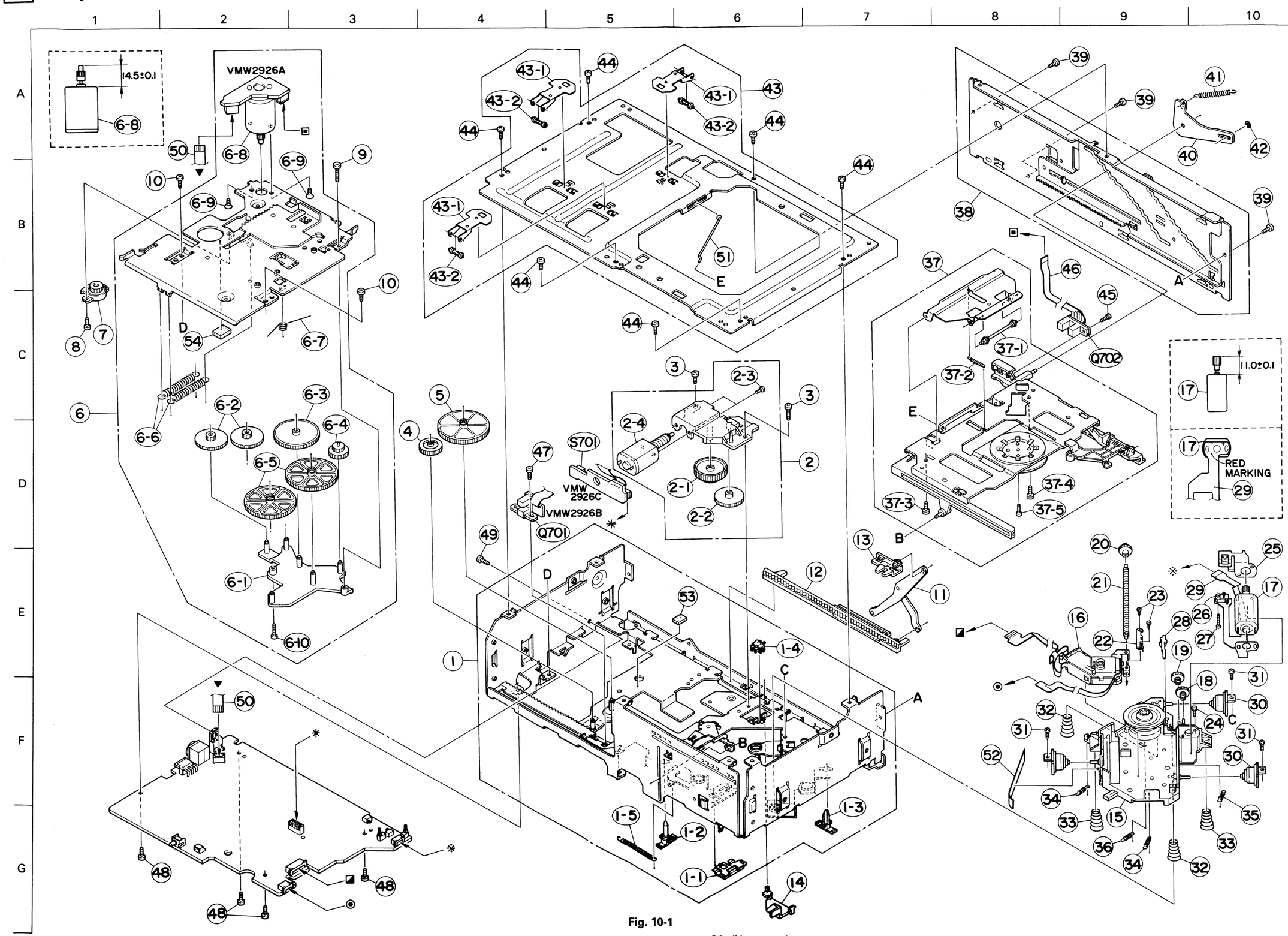


Fig. 10-1

● Mechanism component parts list

BLOCK NO. M2MM[ ][ ][ ]

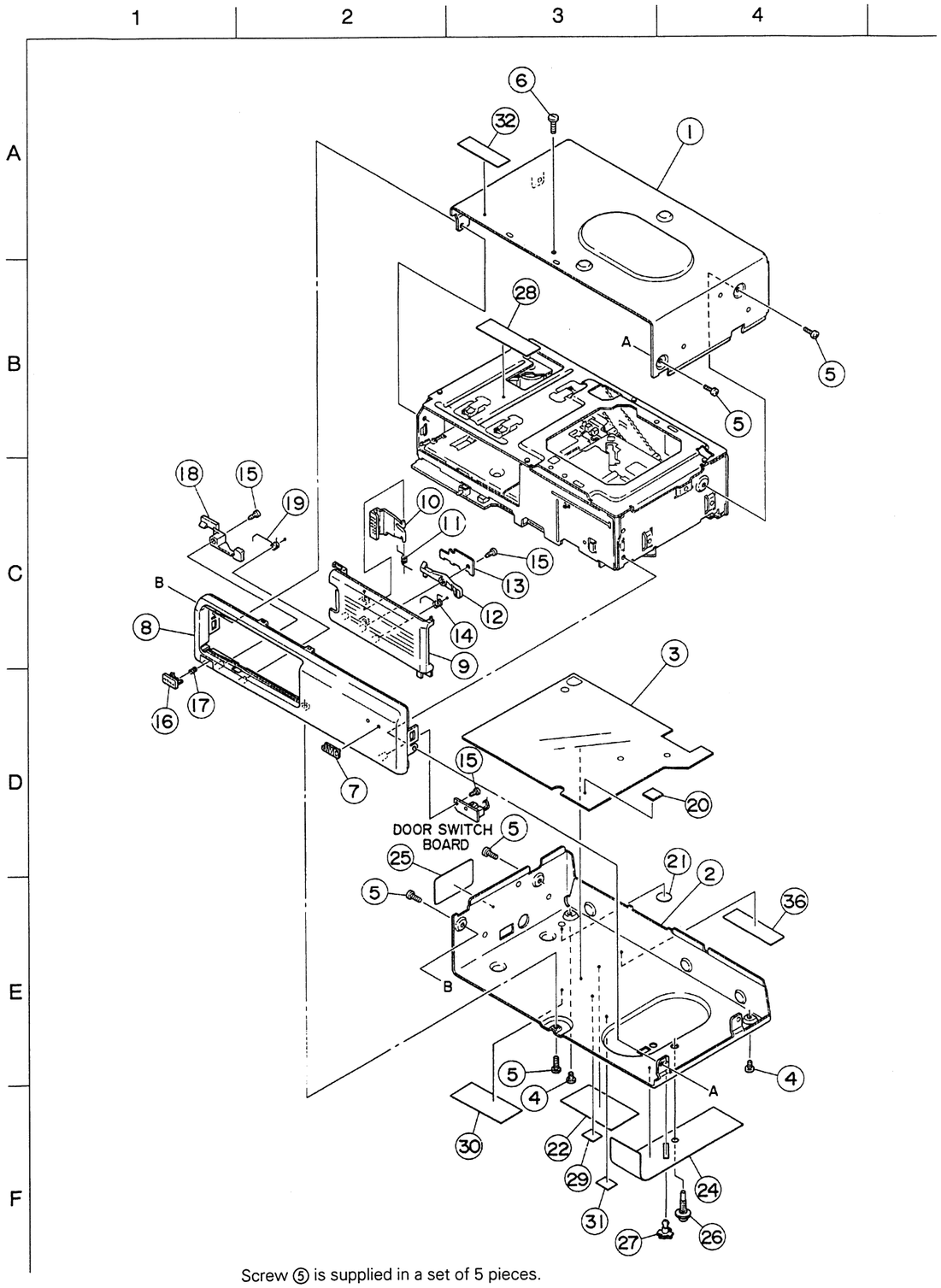
⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
	1	VKL1425-00BSA	CHASS FRAME ASY		1		
	1-1	VKL7740-001	V-H SELECTOR		1		
	1-2	VKS5492-001	TRAY GUIDE(1)		1		
	1-3	VKS5493-002	TRAY GUIDE(2)		1		
	1-4	VKS5494-001	CD8 DETECTOR		1		
	1-5	VKW5135-005	TENSION SPRING	(T.LOCK SLIDER)	1		
	2	VKS3675-00A	LOADING GEAR AS		1		
	2-1	VKR4729-001	LOADING GEAR		1		
	2-2	VKS5345-001	JOINT GEAR		1		
	2-3	SPSH2030M	MINI SCREW		2		
	2-4	PWN10EB12A-SA1	DC.MOTOR	(TRAY LOADING)	1		
	3	SDST2605Z	SCREW		1		
	4	VKR4730-001	UP DOWN GEAR		1		
	5	VKR4731-001	SLIDER GEAR		1		
	6	VKL2729-00A	MAG PLATE UNIT		1		
	6-1	VKS2236-001	UP DOWN GEAR BA		1		
	6-10	SDST2008Z	SCREW		1		
	6-2	VKR3001-002T	GEAR 2		2		
	6-3	VKR4732-001	CONNECT GEAR		1		
	6-4	VKR4730-001	UP DOWN GEAR		1		
	6-5	VKR4731-001	SLIDER GEAR		2		
	6-6	VKW5136-002	TENSION SPRING		2		
	6-7	VKW5137-001	TORSION SPRING		1		
	6-8	MXN13FB12F-SA7	DC MOTOR ASS'Y	(UP DOWN)	1		
	6-9	SDSP3003Z	SCREW		2		
	7	VKZ4737-001	DAMPER		1		
	8	SDST2005Z	SCREW		1		
	9	SDST2610Z	SCREW		1		
	10	SDST2605Z	SCREW		2		
	11	VKL7736-00A	LOADING ARM ASY		1		
	12	VKS2237-001	LOADING RACK		1		
	13	VKS5495-003	HOOK		1		
	14	VKS5496-003	LOADING SW.ACT.		1		
	15	VKS3678-00A	TRA.MECHA ASS'Y		1		
⚠	16	OPTIMA-60B2	P.U.UNIT		1		
	17	FF050SK11170SA1	DC MOTOR	(FEED)	1		
	18	VKR4733-001	MIDDLE GEAR		1		
	19	VKR4737-001	THIRD GEAR		1		
	20	VKR4736-001	S.SHAFT GEAR		1		
	21	VKZ4732-002	SCREW SHAFT		1		
	22	VKL7756-001	RACK PLATE		1		
	23	SPSK1720M	MINI SCREW		2		
	24	SDSP2004Z	SCREW		1		
	25	VKY4698-002	S.SHAFT SPRING		1		
	26	VSH1142-001	SWITCH		1		
	27	VKZ4248-208	MINI SCREW		1		
	28	VKS5500-001	REST SWITCH ACT		1		
	29	VMW3691-001	PW BOARD		1		
	30	VKZ4733-001	DAMPER		3		
	31	SDST2005Z	SCREW		3		
	32	VKW5138-002	SUSPENSION SP.		2		
	33	VKW5138-003	SUSPENSION SP.		2		
	34	VKW5139-002	TENSION SPRING		2		
	35	VKW5145-002	TENSION SPRING		1		

BLOCK NO. M2MM[ ][ ][ ]

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
	36	VKW5140-002	SELECTOR SP.		1		
	37	VKM3804-00C	LIFTER ASS'Y		1		
	37-1	VKZ4563-002	O-RING		2		
	37-2	VKW5141-002	TENSION SPRING		1		
	37-3	SDST2605Z	SCREW		1		
	37-4	SDST2605Z	SCREW		1		
	37-5	SPST2004Z	SCREW		1		
	38	VKM3807-00A	REAR CHASS ASSY		1		
	39	SDST2603Z	SCREW		3		
	40	VKL7742-001	LIFTER TENS.ARM		1		
	41	VKW5142-002	TENSION SPRING		1		
	42	REE1500X	E.RING		1		
	43	VKM3811-00A	TOP PLATE ASS'Y		1		
	43-1	VKY4699-001	MAGAZINE SPRING		3		
	43-2	VKR4734-001	MAGAZINE ROLLER		3		
	44	SDST2603Z	SCREW		6		
	45	VKZ4276-001	SPECIAL SCREW		1		
	46	VMW3692-001	PW BOARD		1		
	47	SDST2605Z	SCREW		1		
	48	SDST2605Z	SCREW		4		
	49	SWSP2606Z	SCREW		1		
	50	VWF1206-08TTBX	TAF CARD		1		
	51	VKZ4744-001	SAFTY ROD		1		

KD – MK70 A/B/C/E/G/GE/GI/J/U

11 Exploded view of enclosure component parts



Screw ⑤ is supplied in a set of 5 pieces.

Fig. 11-1

● Enclosure component parts list

BLOCK NO. M1MM□□□

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
	1	VJG1301-001	TOP COVER		1		
	2	VJG1302-001	BOTTOM COVER		1		
	3	VMA3220-001	INSULATOR		1		
	4	SDST2604M	SCREW	TOP+BOTTOM	2		
	5	VKZ4333-003SA	SPECIAL SCREW	5 SCREWS ASS'Y PARTS	1 set		
	6	SDST2003M	SCREW		1		
	7	PQ44075-3	JVC MARK		1		
	8	VJG1303-003	FRONT PANEL		1		
	9	VJT2343-003	DOOR		1		
	10	VXP3663-001	LOCK BUTTON		1		
	11	VKW5148-001	TORSION SPRING	LOCK BUTTON	1		
	12	VKS3689-001	LOCK LEVER		1		
	13	VKL7753-001	LOCK LEVER BKT		1		
	14	VKW5146-001	TORSION SPRING	LOCK LEVER	1		
	15	SDSF2004Z	SCREW		3		
	16	VXP3664-001	RELEASE BUTTON		1		
	17	VKW3001-318	COMPRESSION SP		1		
	18	VKS3690-001	RELEASE LEVER		1		
	19	VKW5147-002	TORSION SPRING	RELEASE LEVER	1		
	20	VYSR103-050	SPACER		1		
	21	VYSS2R2-028	SPACER		1		
	22	VYN3511-001SA	NAME PLATE		1	B,C,E,J,A,U	
		VYN3511-002SA	NAME PLATE		1	G,GE	
		VYN3511-003SA	NAME PLATE		1	GI	
	24	VND5027-001	CAUTION SHEET		1		
	25	VND5028-001	CAUTION LABEL	SIDE&BOTTOM	1		
	26	VKZ4739-001	SPECIAL SCREW		1		
	27	VKS5502-001	TRA.MECHA HOLDE		1		
	28	E406709-001	LASER CAUTION		1	B,E,GE,GI,G	
	29	E407097-002	HYATT L.LABEL		1	J	
	30	E70891-001	CLASS 1 LABEL		1	B,E,GE,GI,G	
	31	VND4597-001	APROVAL LABEL		1	E	
	32	VND4922-001	CAUTION LABEL		1	J	
	36	VND4999-001	FCC LABEL (4)		1	J	

12 Packing illustration and parts list

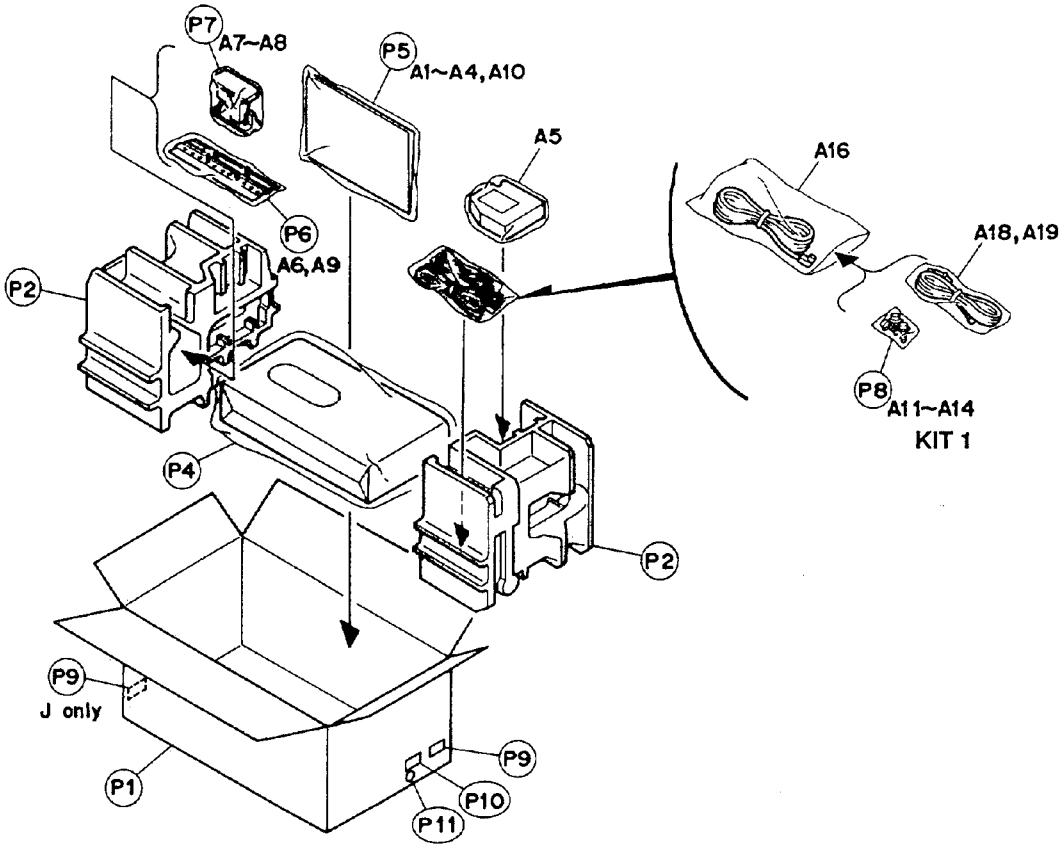


Fig. 12-1

● Packing parts list

BLOCK NO. M4MM

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
	P 1	VPC3511-001	CARTON		1		
	P 2	VPH1659-00A	CUSSION ASS'Y		1		
	P 4	VPE3005-066	POLY BAG	FOR UNIT	1		
	P 5	QPGA017-02405	POLY BAG	INST&WARRANTY	1	A	
	P 6	QPGA015-05005	POLY BAG	MOUNT BASE ASS	1		
	P 7	QPGA017-02505	POLY BAG	MOUNT HOLDER	1		
	P 8	QPGA008-01205	POLY BAG	SCREW SA	1		
	P 9	VND3044-001	SIRIAL TICKET		1	A,GE,GI,U	
		VND3044-004	SIRIAL TICKET		1	B	
		VND3044-006	SERIAL TICKET		2	C	
		VND3044-003	SERIAL TICKET		1	E	
		VND3044-005	SERIAL TICKET		1	G	
		VND3044-002	SERIAL TICKET		2	J	
	P 10	VND3071-069	EAN CODE LABEL		1	A,B,E,G	
		VND3071-069	EAN CODE LABEL		1	GE,GI,U	
		VND3072-062	UPC CODE LABEL		1	C,J	
	P 11	QZLA001-011	MARK		1	E,G,GE	

● Accessories

BLOCK NO. M4MM

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
	A 1	VNN3511-211	INSTRUCTIONS		1	B,E,G,GE,GI	
		VNN3511-631	INSTRUCTIONS		1	A,C,J,U	
		VNN3511-471	INSTRUCTIONS		1	GI	
		VNN3511-451	INSTRUCTIONS		1	E	
		VNN3511-481	INSTRUCTIONS		1	E	
	A 2	BT-20135	WARRANTY CARD		1	G	
		BT-20059D	WARRANTY CARD		1	J	
		BT-56001-1	WARRANTY CARD		1	A	
		BT-20066A	WARRANTY CARD		1	B	
		BT20060	WARRANTY CARD		1	B	
		BT-20025L	WARRANTY CARD		1	C	
		BT-20122-1-A	WARRANTY CARD		1	A	
	A 3	BT-20071B	SVC CENTER LIST		1	C	
		BT-20137	SERVICE NETWORK		1	J	
	A 4	VNC2400-099	INST SHEET		1	A	
	A 5	VYA3007-00C	MAGAZINE ASS'Y	MOUNT BASE+BOLT	1		
	A 6	VKM3489-00B	MOUNT BASE ASSY		2		
	A 7	VKS3691-001	MOUNT HOLDER(L)		1		
	A 8	VKS3692-001	MOUNT HOLDER(R)		1		
	A 9	VYSH103-067	SPACER	MOUNT BASE	2		
	A 10	VYTS499-001	SEAL		1		
	A 11	SDSP4008Z	SCREW	M4 X 8	4		
	A 12	VKZ4328-001	LOCK NUT	M5	4		
	A 13	WNS5000Z	WASHER	FOR M5	4		
	A 14	VKZ4029-003	SCREW	M5 X 20	4		
	A 16	VMO3267-001	8-8PIN DINCORD		1		
	A 18	VMC0014-143	POWER CORD		1	A,B,C,G	
		VMC0014-143	POWER CORD		1	GE,GI,J,U	
		VMC0014-157	POWER CORD(E)		1	E	
	A 19	QMF61G3-6R3J1	FUSE		1	E	
	KIT 1	KDMK70K-SCREW1	SCREW KITASS'Y	P8,A11-A14	1		

JVC
VICTOR COMPANY OF JAPAN,LIMITED
AUDIO PRODUCTS DIVISION 10-1, 1-chome, ohwatari-machi,maebashi-city,Japan

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● Main board parts list

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	B 101	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 102	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 103	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 104	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 105	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 106	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 107	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 108	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 109	NRSA02J-ORONY	MG RESISTOR	5% 1/10W	
	B 201	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 202	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 203	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 204	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 205	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 206	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 207	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 208	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 209	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 210	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 211	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 212	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 213	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 214	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 215	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 216	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 219	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 220	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 221	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 222	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 223	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 224	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 225	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 226	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 227	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 228	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 229	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 230	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 231	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 232	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 233	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 234	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 235	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	B 236	NRS181J-ORONY	MG RESISTOR	5% 1/8W	
	C 151	NCS21HJ-271AY	C CAPACITOR	270PF 5% 50V	
	C 152	QER41EM-475ZN	E.CAPACITOR	4.7MF 20% 25V	
	C 153	QER41EM-475ZN	E.CAPACITOR	4.7MF 20% 25V	
	C 154	NCS21HJ-560AY	C CAPACITOR	56PF 5% 50V	
	C 155	NCS21HJ-560AY	C CAPACITOR	56PF 5% 50V	
	C 156	QERF1CM-107ZM	E.CAPACITOR	100MF 20% 16V	
	C 251	NCS21HJ-271AY	C CAPACITOR	270PF 5% 50V	
	C 252	QER41EM-475ZN	E.CAPACITOR	4.7MF 20% 25V	
	C 253	QER41EM-475ZN	E.CAPACITOR	4.7MF 20% 25V	
	C 254	NCS21HJ-560AY	C CAPACITOR	56PF 5% 50V	
	C 255	NCS21HJ-560AY	C CAPACITOR	56PF 5% 50V	
	C 301	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	

● P.C.Board parts list for main and mechanism

BLOCK NO. 01

⚠	REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
	C 302	NCS21HJ-471AY	C CAPACITOR	470PF 5% 50V	
	C 304	QERF0JM-476ZN	E.CAPACITOR	47MF 20% 6.3V	
	C 305	NCS21HJ-331AY	C CAPACITOR	330PF 5% 50V	
	C 306	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 309	QER41CM-106ZN	E.CAPACITOR	10MF 20% 16V	
	C 310	QER41CM-106ZN	E.CAPACITOR	10MF 20% 16V	
	C 312	NCS21HJ-471AY	C CAPACITOR	470PF 5% 50V	
	C 314	QFLA1HJ-472ZM	M CAPASITOR	4700PF 5% 50V	
	C 392	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 393	QERF1CM-107ZM	E.CAPACITOR	100MF 20% 16V	
	C 401	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 402	NCS21HJ-471AY	C CAPACITOR	470PF 5% 50V	
	C 404	QERF0JM-476ZN	E.CAPACITOR	47MF 20% 6.3V	
	C 405	NCS21HJ-331AY	C CAPACITOR	330PF 5% 50V	
	C 406	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 409	QER41CM-106ZN	E.CAPACITOR	10MF 20% 16V	
	C 410	QER41CM-106ZN	E.CAPACITOR	10MF 20% 16V	
	C 414	QFLA1HJ-472ZM	M CAPASITOR	4700PF 5% 50V	
	C 501	NCT21CH-471AY	C CAPACITOR	470PF +50:-10%	
	C 502	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 503	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 504	QER41AM-107ZM	E.CAPACITOR	100MF 20% 10V	
	C 505	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 506	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 507	NCS21HJ-270AY	C.CAPACITOR	SPINDLE REVERSE	
	C 508	NEF20JM-475RY	TS.E.CAPACITOR	4.7MF 20% 6.3V	
	C 509	QEE41VM-335B	TS.E.CAPACITOR	3.3MF 20% 35V	
	C 510	QER41AM-107ZM	E.CAPACITOR	100MF 20% 10V	
	C 511	NCS21HC-4R0AY	C CAPACITOR	4.0PF 50V	
	C 512	NCT21CH-270AY	C CAPACITOR	27PF +50:-10% 1	
	C 513	NCB21HK-104	C CAPACITOR	.10MF 10% 25V	
	C 514	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 515	QERF1AM-107ZM	E.CAPACITOR	100MF 20% 10V	
	C 516	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 517	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 522	QFV11HJ-223AZM	FILM CAPACITOR	.022MF 5% 50V	
	C 523	QFV11HJ-104AZM	FILM CAPACITOR	.10MF 5% 50V	
	C 525	QERF1AM-336ZN	E.CAPACITOR	33MF 20% 10V	
	C 526	NCS21HJ-681AY	C CAPACITOR	680PF 5% 50V	
	C 531	QFLA1HJ-822ZM	M.CAPACITOR	8200PF 5% 50V	
	C 541	NCS21HJ-181AY	C CAPACITOR	180PF 5% 50V	
	C 542	QFV11HJ-123AZM	FILM CAPACITOR	.012MF 5% 50V	
	C 543	QFV11HJ-473AZM	FILM CAPACITOR	.047MF 5% 50V	
	C 544	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 545	QEPJ1HM-105ZM	NP.E.CAPACITOR	1.0MF 20% 50V	
	C 561	QER41AM-107ZM	E.CAPACITOR	100MF 20% 10V	
	C 562	QER41AM-107ZM	E.CAPACITOR	100MF 20% 10V	
	C 563	QER41AM-107ZM	E.CAPACITOR	100MF 20% 10V	
	C 564	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 565	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 566	NCB21HK-103AY	C CAPACITOR	.010MF 10% 50V	
	C 567	QFV41HJ-103AZM	FILM CAPACITOR	.010MF 5% 50V	
	C 568	NCS21HJ-101AY	C CAPACITOR	100PF 5% 50V	
	C 569	QFV41HJ-103AZM	FILM CAPACITOR	.010MF 5% 50V	
	C 570	QFLA1HJ-332ZM	M.CAPACITOR	3300PF 5% 50V	